

Smart Computing

& CONSUMER ELECTRONICS

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In Plain English

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Do It Yourself

Notebook Repair

- Damaged Displays
- Soaked Components
- Dead Hard Drives
- Problem Batteries
- Broken Keyboards
- Bad Memory

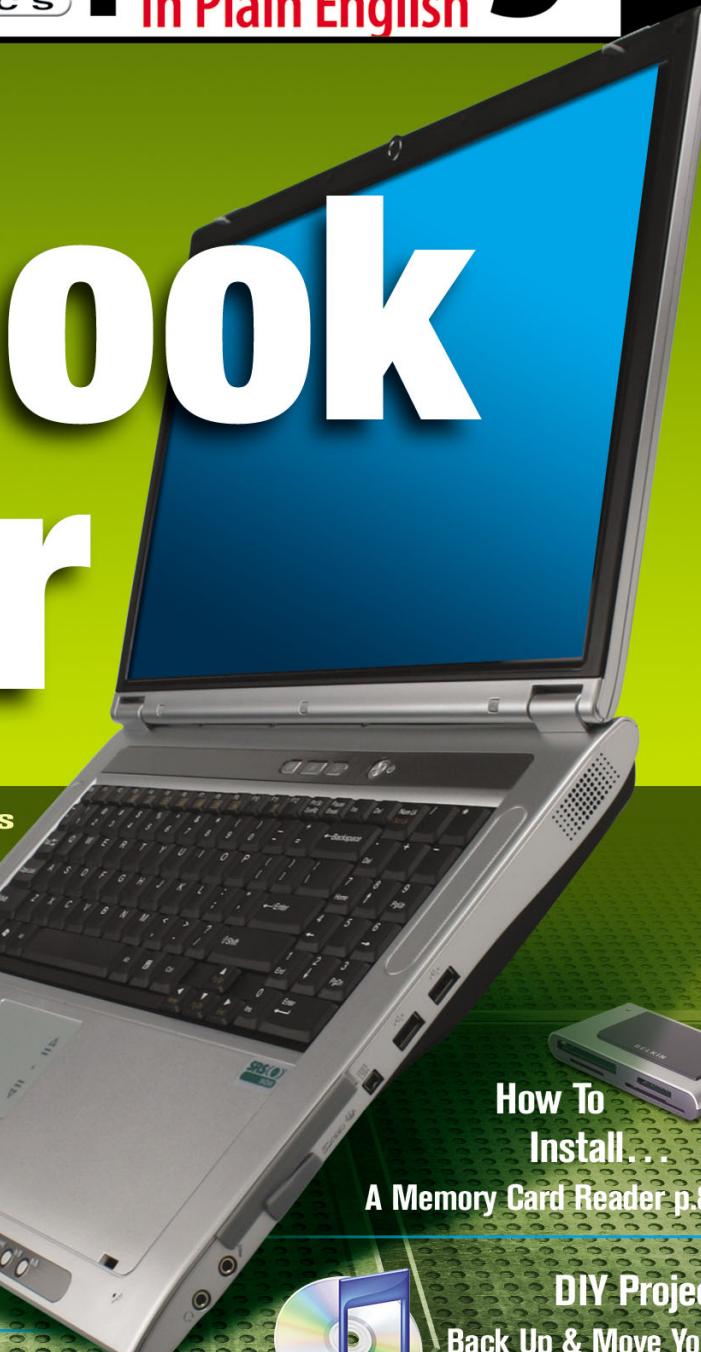
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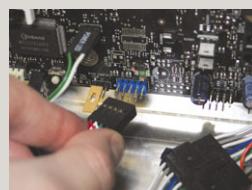
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Consumer Electronics

We tell you what you really need to know about various types of consumer electronics products. This month, we cover:

Speaker Cables



EDITOR'S NOTE

An airport security checkpoint may not seem to be a great place to gauge the public's computing habits, but keeping my mind on business helps me forget that I'm not wearing shoes. Lately, I've noticed an interesting pattern.

Just a few years ago, most of the notebooks I saw at airports (and around town, for that matter) were clean and ding-free. Most notebooks appeared to be brand-new. These days, the opposite is true. I see plenty of notebooks that have scratches, smudges, and chipped corners. In fact, I recently spotted a notebook with an "I gave blood" sticker.

So, what's my point? For many of us, the notebook is transitioning from an intimidating, fragile, and expensive device to a valuable but ordinary tool. We don't panic and buy a new notebook when our old notebook randomly crashes or when a corner of the screen develops a weird discoloration. We have a sense of which problems we can ignore or work around and which problems need attention. Rather than transfer our music, movies, and documents to a flashy new notebook, we live with the blemishes, and we even try to repair some of the problems. In short, we're starting to treat our notebooks much like we treat our desktops.

This month, *Smart Computing* arms you with the knowledge you need to troubleshoot and repair your notebook. I think you'll find that many of these fixes are fairly easy, in part because we use plain-English instructions, and in part because notebook components are pretty accessible these days. So roll up your sleeves and grab your wounded notebook: It's time for a repair.

Joshua Gulick



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Computer Power User

Wanna Step Outside?

Mobile computing has always been about compromise, but things are changing. Thanks to powerful new notebooks, MIDs, and smartphones, you can do more and compromise less.

First Glimpse

Back To School

It's time to load up the kids' backpacks with notebooks, pencils, and glue, but don't forget to throw in a little CE, too. In this issue of *First Glimpse*, we take a look at the selection of gadgets that can help your students, no matter what age, get the most out of their educational years.

PC Today

Ultra-Mobiles

Ultra-mobile computers—smaller than a notebook, larger than a smartphone—are beginning to deliver power and features approaching those of larger standard notebooks. The August issue of *PC Today* examines what's new in highly portable computing.

Compiled by Christian Perry

Illustrated by Jason Codr

DESKTOPS & LAPTOPS

HP Parades New Notebook Families

Thanks to processors that have shrunk in size (yet grown ever more powerful), the line between notebook and desktop PCs is becoming increasingly blurred. Many consumers have replaced their hulking desktops with sleek notebooks that not only serve as high-powered, stay-at-home machines but also as mobile warriors. Manufacturers are certainly seeing the trend, as shown by a new massive release of notebooks from HP (www.hp.com).

The company recently unveiled a new line of consumer notebooks that blends usability with aesthetics. The new "dv" series features a liquid-metallic HP Imprint 2 surface, touch controls, and one-click access to television, photos, movies, and music from anywhere. The series also integrates hard drive protection technology called HP ProtectSmart, which prevents the

hard drive from spinning when it detects sudden movement, and includes an eSATA (External Serial Advanced Technology Attachment) interface for backup to external hard drives.

The HP Pavilion dv4 Entertainment Notebook PC features a 14.1-inch display and an HP SmartBay, which allows the use of a "weight saver" in place of the optical drive to reduce the notebook's overall weight. A variety of optional features are offered with the dv4, including broadband wireless; a bright, mercury-free LED (light-emitting diode) display; Blu-ray optical drive; and an integrated TV tuner. The dv5 ups the graphics ante over the dv4 with a 15.4-inch display and optional Nvidia graphics. The dv7 is even larger, with a 17-inch display and multichannel audio, as well as options such as a subwoofer, Blu-ray drive,

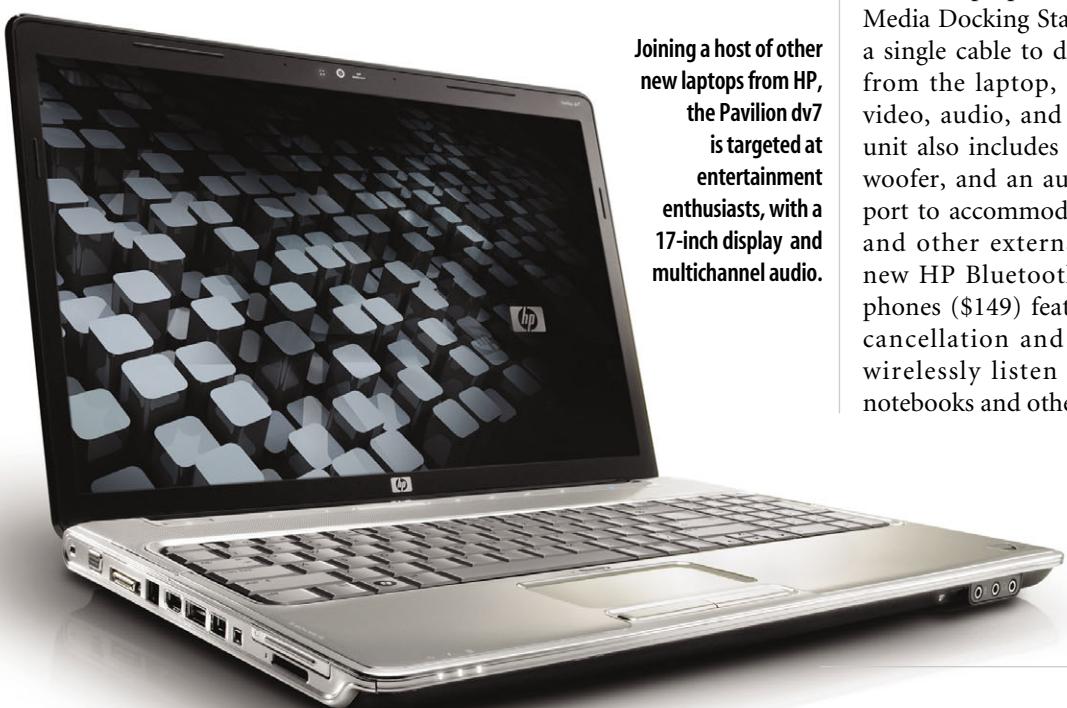
built-in TV tuner, and graphics from ATI or Nvidia.

Prices for the dv4t (with Intel processor) notebooks start at \$999, while the dv4z (with AMD processor) start at \$799. The dv5t (Intel) starts at \$899; the dv5z (AMD) starts at \$699; the dv7t (Intel) starts at \$1,229; and the dv7z (AMD) starts at \$949.

Also new from HP is the Presario CQ45 notebook (pricing unavailable at press time), which features a 14.1-inch display and includes a built-in TV tuner and optional Blu-ray drive. The new Presario CQ40 and CQ50 are 14.1-inch and 15.4-inch notebooks, respectively, and they are geared toward frequent travelers who need essential mobile and wireless features. Pricing for the CQ40 was also unavailable at press time, but the CQ50 will start at \$499.

HP also released a couple of notebook-centric devices alongside the new laptops. The xb4 Notebook Media Docking Station (\$249) uses a single cable to deliver all signals from the laptop, including USB, video, audio, and power, and the unit also includes speakers, a subwoofer, and an auxiliary audio-in port to accommodate MP3 players and other external devices. The new HP Bluetooth Stereo Headphones (\$149) feature active noise cancellation and allow users to wirelessly listen to music from notebooks and other devices. ■

Joining a host of other new laptops from HP, the Pavilion dv7 is targeted at entertainment enthusiasts, with a 17-inch display and multichannel audio.



STORAGE

Lite-On Unveils One-Touch Burning

Savvy PC users have long trusted Lite-On for its reliable, affordable optical drives. But while the company's offerings historically have been nondescript, the company has added some user-friendly features and a little flair to its optical lineup.

Lite-On's DX-20A4PU external 20X DVD writer (us.liteonit.com/us) features EZ-DUB, a feature designed to ease the process of copying discs. The feature adds two buttons to the DVD writer that enable quick, easy copying and backups. The two buttons are found on the top of the unit and glow neon blue when in operation.

How easy is it? To copy discs, simply insert the original CD or DVD, press the Dub button, and replace the original disc with a blank one

when prompted. To back up data, simply drag files to the EZ-DUB folder on the Windows Desktop, insert a blank disc, and press the File button.

The drive also includes a Seamless Link function that helps to eliminate buffer underruns, and the drive's Smart-X function adjusts CD-DA (CD-Digital Audio), VCD (Video CD), and DVD data extraction to optimize writing speeds. The drive has a street price of about \$60. ■



Lite-On's EZ-DUB
technology uses two
buttons—Dub and
File—to easily perform
tasks such as copying a
DVD or CD or backing up
data to optical discs.

DISPLAYS

DisplayPort: Adios, DVI

To a casual observer, monitors in the PC market might appear to be dominated by the DVI (Digital Visual Interface) standard, which has grown immensely since LCDs exploded onto the scene years ago. But according to recent research, the venerable standard is on its way out the door and is set to be replaced by DisplayPort.

According to In-Stat, the DisplayPort standard—which In-Stat calls the first universal, digital interface between PCs and LCD monitors—will push DVI out of the market by 2011, thanks to an estimated annual growth rate of 243% from 2008 to 2012. There won't be a large number of products using the standard this year, but In-Stat expects more than 600 million DisplayPort products to be shipped in 2012.

"PC and LCD monitor vendors have been searching for this interface for several years," says Brian O'Rourke, In-Stat analyst. "While VGA

[Video Graphics Array] is universal in both markets, it is an older analog technology that is not equipped to handle the increasing resolutions of today's computing environment."

For DVI's part, O'Rourke adds that despite its ability to provide higher resolutions than VGA, it uses older raster/scan technology, it has limited bandwidth, and it has never enjoyed significant PC market penetration. ■



Experts predict the DisplayPort standard, which is already appearing in devices such as this Dell 3008WFP monitor (starts at \$1,999; www.dell.com), will push the DVI (Digital Visual Interface) standard out of the PC market in coming years.

PoGo Ushers In A New Polaroid Era

In the June issue of *Smart Computing*, we relayed details on a new inkless printing technology called ZINK (short for Zero Ink; www.zink.com). Now, one of the first printers using ZINK has appeared, and it looks pretty darn enticing.

The Polaroid PoGo (\$149; www.polaroid.com) is an 8-ounce mobile printer that's only 2.8 inches wide and 4.7 inches tall, uses a rechargeable lithium-ion battery, and—of course—uses no ink. Instead, the PoGo uses ZINK technology to embed color into the paper, and Polaroid says the prints are dry to the touch, water resistant, tear-proof, and smudge-proof. The PoGo prints up to 15 2- x 3-inch borderless, sticky-back prints per battery charge, at about 60 seconds per print.

Although PoGo users won't have to fret about high ink costs, they'll be paying a little more than usual for the special paper that the printer requires. The paper costs \$3.99 for a pack of 10 sheets or \$9.99 for 30 sheets. The PoGo can print directly from Bluetooth-enabled devices, including certain mobile phones, or through a USB cable. Cameras using the PictBridge standard can be connected directly to the printer. **I**

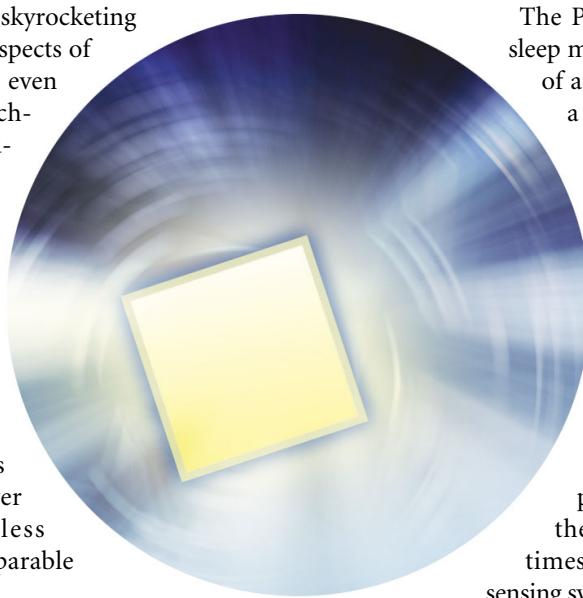


This Polaroid PoGo printer doesn't utilize ink but instead uses a special technology that embeds color into the 2- x 3-inch borderless prints that feature a removable sticky back.

Phoenix Flies The Low-Power Route

The floundering economy and skyrocketing fuel prices are impacting all aspects of everyday life and in turn placing even greater emphasis on efficient technology. For years, we've seen advances in power-efficient chips, but now these announcements seem more vital than ever as consumers look to cut costs wherever possible.

For this reason, an advance along the lines of the Phoenix Processor is particularly pertinent. Designed by engineers at the University of Michigan, this chip uses 30,000 times less power in sleep mode and 10 times less power in active mode than comparable chips on today's market.



The Phoenix uses 30 picowatts when in sleep mode (each picowatt is one-trillionth of a watt). To put that into perspective, a watch battery could theoretically power the Phoenix for a mind-boggling 263 years. The chip is also unique because its size—one square millimeter—is the same size as its thin-film battery.

"Low power consumption allows us to reduce battery size and thereby overall system size," says David Blaauw, a professor at the university's Department of Electrical Engineering and Computer Science. "Our system, including the battery, is projected to be 1,000 times smaller than the smallest known sensing system today." **I**

DIGITAL MISCELLANEA

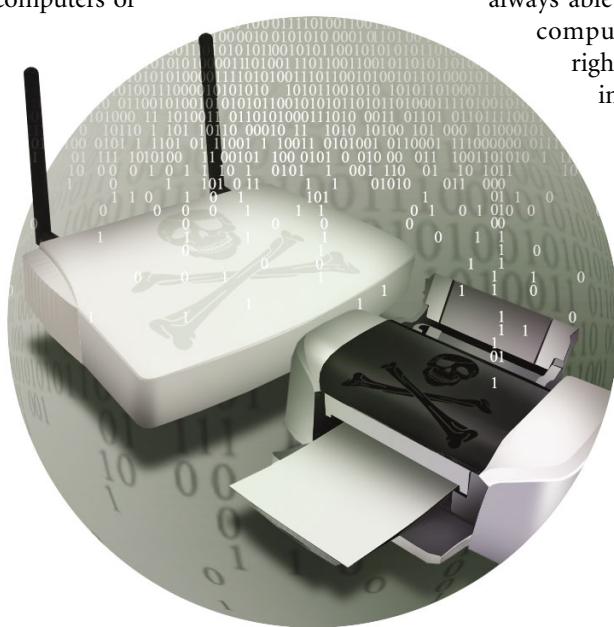
Your Printer, The Pirate

You wake up on a crisp, sunny day to the sounds of birds chirping happily. After grabbing a cup of coffee, you sit down at your PC, open your email client, and stare in horror at the message that arrived overnight in your inbox: You've been served a DMCA takedown notice that accuses you of copyright infringement.

Empowered by the powerful Digital Millennium Copyright Act, owners of copyrighted works can demand that infringers—including music and movie pirates—remove copyrighted material from their computers or Web sites. If the content isn't removed, the DMCA can give the copyright owners the legal authority to force Web hosts to

shut down Web sites and have service providers terminate home Internet connections. However, researchers have discovered that detection methods can be almost laughably flaky.

A study released by students and faculty at the University of Washington found that just about any Internet user can be accused of copyright infringement, regardless of whether he actually downloaded or shared any content at all. Worse, during testing, the researchers discovered that current methods for detecting copyright infringement aren't always able to distinguish an actual desktop computer that might be storing copyrighted material from a benign, non-infringing device, such as a printer or even a wireless access point. ■



PROBLEM-SOLVER: TROUBLESHOOTING THE NEWS

I have 2GB of RAM, but Windows Vista tells me I have only a few kilobytes free. Should I buy more RAM?

Not necessarily. Vista's SuperFetch technology preloads regularly used applications into your system memory for quick access, which usually explains the low available RAM amount. If you're not noticing delays when working on your PC, you shouldn't need additional RAM.

I bought a new LCD, but the display appears to shake every so often.

This is often indicative of a problem with the refresh rate. In Vista, right-click the Desktop, click Personalize, choose the Display Settings, click Advanced Settings, and then choose the Monitor tab. Make sure the Screen Refresh Rate is set at 60 Hertz and then click Apply and OK.

My printer sends out blank pages between printed pages.

If the paper is excessively light or thin, the printer might be grabbing multiple pages. But, a more likely

cause is that the printer is set to output a separator page between prints. Refer to your printer's manual and check the printer settings for a separator page option and then disable it.

I installed a new CPU in an older motherboard, but the PC isn't booting.

It's generally a good idea to first check that the motherboard is using updated firmware. Reinstall your old CPU and visit your motherboard manufacturer's Web site for the newest update.

Android: Freedom For Smartphone Users?

When it comes to smartphones and other mobile phones, consumers have only a fraction of the computing freedom they enjoy with PCs. Mobile service providers generally allow only certain programs to be used on their devices' operating systems, and while the programs that are available for download are more useful and plentiful than they used to be, the selection offered by providers is still relatively slim.

But Google's Android is set to change the mobile platform in ways that will be widely welcomed by previously locked-in consumers. The Android platform is powered by Linux and designed exclusively for mobile devices. Because Android is open source, the platform—at least in theory—will allow any developer to develop programs for it, which should result in a massive selection of software that can address just about any function.

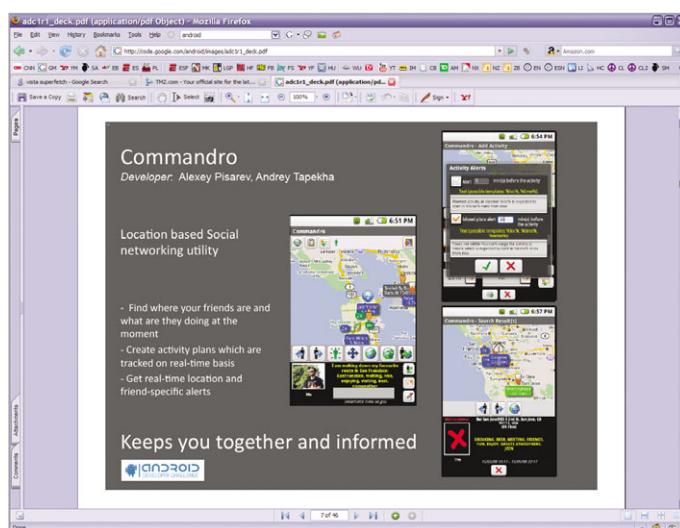
In the desktop Linux world, this open-source environment works extremely well, attracting some of the world's best and brightest developers to create unique, powerful software that's available free to all users. Further, over the years, the methods for obtaining this software has become slick and streamlined, allowing Linux users to instantly tap into the massive open-source repository and choose the software they want to download and use.

Android proponents see a similar future, but roadblocks are appearing along the platform's journey to realization. Devices using Android were expected to hit the market by the second half of this year, but now wireless carriers and Android partners are indicating the phones won't be available until later in the year. In particular, Sprint has been working to release an Android-powered phone, but industry sources have said that the company is encountering delays because it wants to include Sprint-branded services with the devices. Sources also echoed the same concerns from China Mobile, which wants to integrate its own branded data services on the platform.

The lifeblood of any open-source project is the developers, but complaints

are emerging in the development community that the Android platform can be difficult to work with due to inadequate documentation, bugs, and other problems. However, Google is continuing to tweak the young platform, and as it continues to evolve, programming-related troubles could decrease.

Earlier this year, Google held the first round of the Android Developer Challenge 1, which received more than 1,700 contest entries from developers who created Android applications. Of these entries, 50 teams of developers each received a \$25,000 award. Larger awards will be given in the next round of the challenge. ■



Users of Android-powered phones will have access to thousands of free applications, including many that have already been developed, thanks to Google-sponsored developer challenges.

DULY QUOTED

"It just makes me wonder how long it will take before they get sued."

—Jupiter Research analyst Barry Parr comments on Glassdoor.com, which lists current salaries paid by hundreds of major companies, as well as anonymous reviews by workers.

Source: Associated Press

News From The Help Desk

Our Most Common Tech Calls

COMPILED BY SETH COLANER

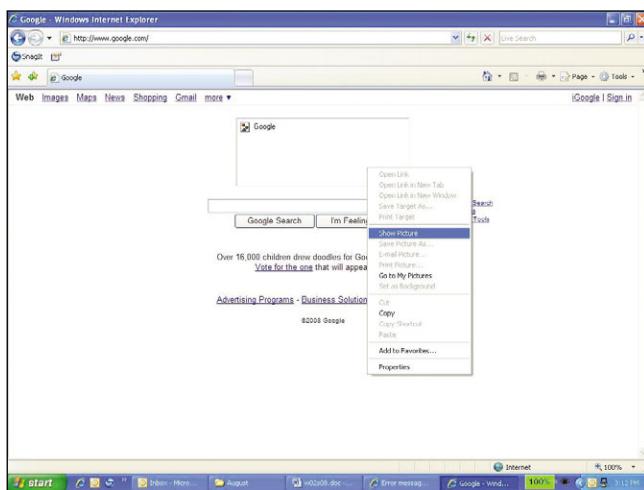
Each month, we receive numerous technical support calls and email messages. Some computer problems are fairly common, and we find that many callers struggle to resolve the same issues. In this article, we cover some of the most common or timely tech support questions and provide our solution for each of them.

Q Sometimes, when I receive emails or visit Web sites, I see an empty box with a red X in the corner instead of the image that's supposed to be there. What's that X for and how can I get rid of it?

A Ah, the red X. Every one of us has likely had this experience with images on Web sites or in emails. The reason the image does not display is because either the link to the image has been changed or moved or your Web browser or email client can't display that type of image.

If the problem is the former, there's good news and bad news: The good news is that the red X isn't your fault and there is nothing wrong with your computer. The bad news is that there's little you can do about it. The problem in this case lies with a Web site's or email sender's broken or missing link. The only thing you can do to fix it is contact them about the problem.

Before you go shouting at some poor Web site administrator though, consider that the problem might be with your browser or email client. The easiest solution is simply



Whenever an image in a Web browser or email fails to display, try to get it to show up by right-clicking the blank box and selecting Show Picture.

to right-click the empty box and click Show Picture. If this works, you should check your settings to ensure that you don't have to right-click every picture you want to view as you may have disabled a graphics display function.

In Internet Explorer 7, for example, open a browser window and click Tools and then Internet Options. Click the Advanced tab, scroll down to the Multimedia heading, and check the Show Pictures box. Click Apply and then click OK to close the dialog box.

If nothing works, the browser or email client may simply not support the image. Contact the Web site administrator to see if there is anything that can be done on that end.

Q I ran a Registry cleaner to clean up my computer, but now my machine is sluggish, and certain programs don't work anymore. I thought the Registry cleaner was supposed to speed my computer up; what's going on?

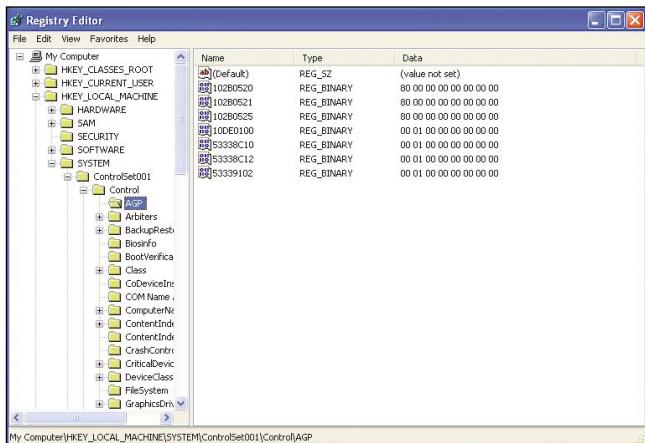
A The Windows Registry is the heart and soul of every Windows computer. It contains information and settings for every facet of your computer, including hardware, software, user preferences, and more. What's more, every time you make a change to anything—changing system settings, uninstalling a program, moving a file, and so on—the change is reflected in the Registry.

And that's just it—every little thing is in the Registry. Even after you uninstall a program, for example, bits and pieces of unnecessary data remain. Over time, this data can accumulate and slow down your computer. A problem registry can also cause error messages.

Whether or not you should use a Registry cleaner at all is a contentious issue among folks in the know. Aside from the argument over whether or not a good scrubbing of the Registry will speed up your computer, making changes to the Registry is tricky and potentially hazardous. You must be extremely careful when making changes. If you delete the wrong thing, it could wreak havoc on your system, causing a number of problems such as those described in the above question.

Therefore, the advice of many experts is to just leave the Registry alone; even if cleaning it does improve performance, it may not be worth the risk that you'll delete something important. In other words, the honey may be sweet, but is it worth sticking your hand in the beehive to extract it?

One point on which virtually everyone agrees is that if you don't know what you're doing, don't toy with items in the registry. Think of it as working on a broken-down car;



From the Windows Registry Editor, you can remove unnecessary items, but you must be extremely careful not to delete anything that your system needs to operate properly.

you wouldn't pop open the hood and just start pulling out hoses and removing parts if you didn't know what they were for. Yanking out random engine parts is about as smart as arbitrarily deleting registry items.

Case in point: The problem of a sluggish computer or a computer with programs that refuse to run after a Registry cleaning is most likely due to the fact that the Registry cleaner removed a false positive. In other words, the Registry cleaner deleted something your computer needed to run properly.

If you do decide to edit the Registry, there are two ways to do it. The simplest is to open the Registry and delete items that you know should not be there, one at a time. To open Registry Editor, click Start and Run, enter **regedit** in the Open box, and click OK. (In Vista, simply click the Start button and enter **regedit** in the text field.) When Registry Editor opens, expand the folders until you've located the item or items you wish to delete. Right-click each item and select Delete.

The other way is more efficient, but requires the purchase of third-party Registry-cleaning software. There are some reputable Registry cleaning applications out there, and it's true that they'll rid your Registry of some unnecessary or problematic items. This is especially useful as the vast majority of computer users don't have the first clue about what to delete from the Registry themselves. Yet the programs are not immune to removing false positives. Some Registry cleaners will ask you before removing an item, but if you don't know enough to delete items yourself (and very few people do), you probably won't have any idea whether or not to approve the deletion.

Before you do anything to the Registry, back it up. Open Registry Editor, click File, and then click Export. Give the backup a name and click Save. The file will be saved with a .REG extension.

You should also back up your entire system. This way, if something goes wrong, you'll have a System

Restore Point that you can fall back on. To set a restore point in WinXP, click Start and Run and then type **%SystemRoot%\system32\restore\rstrui.exe** in the text field. Click OK, and when the Welcome screen appears, click the Create A Restore Point radio button. Click Next, enter a description so you'll remember the restore point, and click Create. In Vista, click Start, type **System Restore** in the text field, and press Enter. On the resulting screen, click Open System Protection. Make sure the checkbox next to your system is checked and click Create. Enter a description for the restore point and click Create.

If you need to reach the restore point for any reason, repeat the above steps until the Welcome screen. This time, select **Restore My Computer To An Earlier Time**, click Next, and select the restore point you created. Click Next and Next again. Your computer will restart with everything at the restore point saved exactly as it was.

Whether you edit the Registry manually or run a Registry cleaner, do so at your own risk. Er, at the computer's own risk, that is. ■

Feature Package Topics

Each *Smart Computing* issue includes tips, reviews, and information about a variety of topics. However, each issue also has a featured group of articles about a selected topic. Below is a list of the Feature Packages from the previous year. As a *Smart Computing* subscriber, you have access to all of our archived articles at www.smartcomputing.com.

September 2007:	What To Do About PC Errors & Error Messages
October 2007:	Build It Yourself: How To Create The Perfect PC
November 2007:	How To Edit, Protect & Restore Critical PC Settings
December 2007:	Laptops Take Over
January 2008:	Get It All: Power, Price & Portability
February 2008:	Time For A PC Tune-Up: Improve Speed, Performance & Reliability
March 2008:	Get More Out Of Your PC: Here's What You Can Do!
April 2008:	Solve Common PC Problems; Fix It Yourself Step-By-Step!
May 2008:	The Perfect Home Network: A Step-By-Step Guide
June 2008:	Protect Your PC & Your Privacy: Block Intruders & Malware
July 2008:	Go Wireless: Share Audio, Video & Data Without Cable Clutter
August 2008:	Clean Out Your PC: Preventive Maintenance
	Troubleshoot: Software
	Get Rid Of Glitches

Zoom In

Get Up Close With The SP-570 UZ

Tara Simmons

Send your comments to
tara@smartcomputing.com



SP-570 UZ

\$499.99

Olympus

(888) 553-4448

www.olympusamerica.com

Ah, late summer. A time of college football, changing seasons, and lingering suntans: all good reasons to whip out the digital camera. I find a lot of reasons to take pictures, and few devices have served me as well as the quality, compact point-and-shoot digicam I bought a few years ago. Its portability and ease of use are hard to beat. However, there are several features missing from the slim device that I'd like in a camera.

I found these features (and most of the features I value in my point-and-shoot) in the Olympus SP-570 UZ. This prosumer device let me adjust controls such as shutter speed, ISO, and aperture, and it even has a RAW recording mode so I can store pictures without compressing them (a bonus for anyone who would like to manipulate photos in Photoshop or another design program). It also has a wide range of preset shooting modes for no-fuss photography.

Impressive Zoom

The standout feature of the SP-570 UZ, though, is the respectable 20X optical zoom, which you just won't find in an ultra-compact camera. The 20X zoom let me zero in on athletes even from my not-quite-field-level seats at a baseball game. This is a feature that I've wished for at concerts, graduations, and a host of other picture-worthy functions. Shaky hands can ruin a picture at this zoom level, but the built-in image stabilization helped produce clear images.

The zoom also adds bulk to the camera, but I don't mind a little heft in my electronic devices as long as they're not unwieldy. The case felt sturdy and the built-in grip made holding the camera comfortable; it didn't feel cumbersome.

The same can't exactly be said for the controls and interface. Both took some

getting used to. I had to consult the manual to discover a few functions (including formatting the memory card), and several other people who picked up the camera had to ask me how to perform even basic tasks.

No-Fuss Features

Despite fiddling with adjustable controls when I had the time, I found myself defaulting to automatic shooting modes when I wanted to snap a shot quickly. It was nice to be able to use the point-and-shoot features in these situations.

The extensive scene mode options include Portrait, Landscape, Night Scene, Fireworks, Shoot & Select, and Smile Shot (which means it will snap a photo only after your subject smiles; it can be fooled, but most of the time this worked well). The Fireworks and Night Scene modes produced beautiful, perfectly lit photos, and Shoot & Select came in handy when I was looking for a good candid shot at a family get-together.

The high megapixel count (10MP) let me make large prints and crop photos without any detectable loss in overall image quality. In fact, prints overall were clear and vibrant. If I used this camera regularly, I would opt to shoot at a lower megapixel count to preserve memory space, as 10MP is overkill for my usual 4- x 6-inch prints.

Speaking of memory cards, the SP-570 UZ uses an xD-Picture Card, which is a bit more expensive than other cards. (A 2GB card will set you back about \$35.) The camera also uses four AA batteries, which some people prefer because they're easy to buy if you run out of juice. I'd suggest investing in some rechargeable batteries to cut down on battery costs in the long run.

There are a few features missing in the SP-570 UZ that I'd like to see. For instance, I'd like the option to shoot in black and white or sepia. You can add both effects through an in-camera editing process. I'd like to be able to shoot in different color tones, but really, it's a minor quibble.

Altogether, this camera is a nice step up from my current point-and-shoot. ■

Summertime Audio

Devices That Can Stand The Heat

Blaine Flamig

*Send your comments to
blaine@smartcomputing.com*



8GB Zen

\$129.99

Creative

(800) 998-5227

www.creative.com



LS-10

\$399.99

Olympus

(888) 553-4448

www.olympus.com



AirDrives Adult

\$79.99

Mad Catz

(800) 831-1442

www.madcatz.com

In any given month, I see a lot of newer hardware. Maybe because summer is here, I've seen a lot of audio gear in particular lately, including several DAPs (digital audio players) and headphones, a digital audio recorder, and an audio streaming device that's aimed at teens but is suitable for adults, too.

Among the DAPs I've played with recently are SanDisk's 2GB Sansa Fuze, Creative's 8GB Zen, and Sony's Video Walkman 8GB NWZ-S718. SanDisk's players generally offer plenty of extras at a great price, and the Fuze is no exception. Available in 2GB (\$79.99; www.sandisk.com), 4GB (\$99.99), and 8GB (\$129.99) sizes, the Fuze's click wheel navigational system is reminiscent of the iPod's, but unlike the iPod, you also get an FM radio (40 presets), voice recorder, and SD card slot. One negative is the proprietary USB connection SanDisk uses vs. a more common standard mini-USB port/cable. Still, as an iPod nano alternative, the Fuze excels.

The NWZ-S718 (\$199.99; www.sonystyle.com), meanwhile, outputs audio that's borderline magnificent. The player also uniquely integrates noise-cancelling technology, eliminating roughly 75% of ambient noise—provided you're using the included EX series noise-cancelling earbuds. Even without noise-cancelling on, though, the S718 outputs smacking bass that resonates fully. Additionally, individual instruments in the mids and highs aren't overpowered and don't lose their flavor. Overall, the NWZ-S718 should make any traveler craving noise-cancelling abilities happy.

I can't recall a DAP that won me over as quickly as Creative's 8GB Zen. Audio quality is outstanding. Video displays beautifully on the 2.5-inch screen. Customizations and configurations are actually useful, and FM radio, memory card slot, and great battery life (30 hours, audio; five hours, video) are included.

The menu could use tweaking (but is still dead-easy to maneuver), and Outlook Contacts, Calendar, and Tasks are all syncable. Other than better video support and adding Bluetooth/Wi-Fi, I wouldn't change much.

Olympus' LS-10 will play music over its two stereo speakers, but the device really specializes at recording audio. To that end, you get upper-tier features at a lower-tier price. Two stereo microphones capture sound, which saves as uncompressed WAV (96KHz, 24-bit), MP3 (320Kbps), or WMA (160Kbps) files. A customizable Fn button is available, as are microphone sensitivity, recording level, and microphone effect settings. My indoor and outdoor recordings were fantastic. Electric guitar recordings I made, for example, captured all the buzzes, clicks, and other expected nuances with great clarity and volume.

I've used nothing but noise-cancelling headphones for years, so adapting to Mad Catz's new AirDrives headphones took some effort. Mad Catz's approach to headphones is placing the earpiece near the ear canal's front vs. center, thus driving stereo-quality audio toward the open ear so you can still hear sounds around you. Beside Kids (\$49.99) and Adult models (\$79.99), an iPhone (\$99.99) model also works for the BlackBerry Pearl and Curve and builds a microphone, volume controller, and phone-to-music button into the lanyard. I still prefer noise-cancelling headphones, but the AirDrives are ideal for outdoors when eliminating ambient noise isn't always a smart idea.

Aerielle manufactures FM transmitters for Kensington, iRiver, SanDisk, and others, but its i2i Stream Two Pack (\$99.95; www.i2igear.com) lets two or more users wirelessly share audio from one DAP over headphones. Just plug an i2i Stream unit into a DAP and audio transmits up to 30 feet via 2.4GHz technology to other i2i units your pals hold. Each unit has a light with seven colors that makes connecting units as easy as matching colors. Beyond sharing audio, I used the i2i to wirelessly listen to audio from a television, DVD player, computer, and other devices. Wirelessly sharing audio doesn't get much easier. ■

Wii Want To Play

Gaming For Everyone

Jennifer Johnson

*Send your comments to
jennifer@smartcomputing.com*



Wii

\$249.99

Nintendo
(800) 255-3700
www.nintendo.com



Wii Fit
\$89.99

One of the things I love about technology is the many ways in which it enables us to interact with people and cultivate relationships. For example, email lets us send instant letters to friends around the world to let them know what's going on in our lives. Likewise, digital photos make it possible for loved ones in another state to see Timmy's first steps and precious expressions just moments after they've occurred.

Another Revolutionary Technology

Not long ago, Nintendo released the Wii game console, a product that brought gaming to the masses, including people who wouldn't traditionally be interested in video games. I'm part of this latter bunch—you see, even though I have a deep love for technology, video games have never really been a part of that passion.

The Wii changed my perspective, however, as I've come to love this little white box with its motion-sensitive controllers (which other gaming consoles lack, I might add). Not only am I having fun playing some of the sports games on the Wii console, but my video game-loving husband enjoys playing them, as well. In addition, we've found that the Wii is a great tool for entertaining. In fact, we've spent many Friday nights playing one of the five sports games (tennis, baseball, golf, bowling, and boxing) that accompany the console. Because my husband enjoys playing video games much more than I do, he has purchased other games, as well, but the sports games are definitely the most used when friends and family are around.

I am continually amazed by the wide range of people who enjoy playing the Wii. This last Thanksgiving, for example, my husband, his grandfather, and his dad played Wii bowling after enjoying our traditional feast. What's more, grandpa had never been bowling before and still managed to throw a strike after only a few tries!

This speaks wonders about the Wii's ease of use: Even though grandpa was new to both the sport (bowling) and to video games, he was able to pick it up quickly and enjoy it. Needless to say, we all had a very good time bonding over Wii bowling.

Get Up & Move

Building upon the huge success of the Wii, Nintendo continues to produce additional games and accessories and add functionality. One of the company's latest products is the Wii Fit. Although the basic sports games that accompany the Wii console are sure to encourage some degree of activity (when bowling, for example, you move your arm as if you're going to throw a bowling ball), the Wii Fit balance board and game software increase the action.

Within the Wii Fit software, you can measure your BMI (body mass index) and track your progress as you perform different activities in areas such as yoga, aerobics, strength training, and balance. While playing the various Wii Fit games and performing different activities, I was challenged to improve my balance and posture and to strengthen my muscles. Even though I didn't get what I would call a strenuous cardio workout while using the Fit, there were plenty of moments where my heart was beating more quickly than normal.

For best results, you should place the Wii Fit balance board on a hard surface. Because my family room has carpeted floors, I placed a 1-inch thick piece of wood underneath the balance board. With a solid surface beneath the board, I was impressed at its sensitivity: Even the slightest shifts in my balance would display on the TV's screen.

Entertainment For All

Nintendo claims the Wii "allows for a unique social gaming experience for the whole family." I agree: The games that accompany the Wii, along with various other games and accessories, provide good, wholesome fun for the entire family, young and old alike. As for the Wii Fit, who doesn't want to have fun while improving her figure? ■

Speed Up Your Laptop

SSDs vs. Hard Drives

Marty Sems

*Send your comments to
marty@smartcomputing.com*



Scorpio Black 320GB

\$249

Western Digital
(949) 672-7000

www.westerndigital.com

We're buying more laptops than ever before. Maybe that's why we're complaining so much.

A computer won't seem responsive and lively if its main storage drive is slow. Unfortunately, laptop buyers start out behind the eight ball, as 2.5-inch notebook hard drives are typically slower than their 3.5-inch desktop cousins. (The measurements nominally refer to the diameters of the hard disks inside the drives.) There are much faster alternatives, of course, but you'd better prepare yourself for sticker shock.

WD Scorpio Black 320GB

Western Digital has color-coded its new drives, such as this 2.5-inch model for notebook use. A Black appellation means high performance; Blue means inexpensive capacity; and Green indicates power savings.

The Scorpio Black's disks spin at 7,200rpm, which means that it's a peppy drive as notebook models go. It uses a SATA (Serial Advanced Technology Attachment) interface. Compared to the following SSDs (solid-state disks), this Scorpio offers cheap capacity on a cost-per-GB basis.

Samsung 2.5-inch 32GB SSD SATA-2 (MCBQE32G5MPP-0VA)

As I've mentioned, the future of notebook storage may belong to SSDs. Flash drives give laptops longer battery life than hard drives, and they're much more likely to survive the hard knocks of portable computing.



2.5-inch 32GB SSD SATA-2

\$397 (DVNation.com price)

Samsung

(408) 544-4000

www.samsung.com

GT Series 32GB

\$845 (DVNation.com price)

Memoright

sales@memoright.com

www.memoright.com/en

Also, depending on the model, some SSDs can read and sometimes write data faster than typical hard drives. For instance, this Samsung has the speediest read rates I've seen from any single drive, whether disk- or flash-based.

Of course, note that this SSD costs about 16 times more per GB than a hard drive such as the Scorpio. Also, most consumer SSDs top out at 64GB or 128GB, whereas notebook hard drives go all the way to 500GB.

Memoright GT Series 32GB

Chinese company Memoright took another path with its GT Series of SSDs. It focused on increasing the GTs' write speeds, which in most flash-based drives typically lag behind the read rates.

Although the benefits of higher write speeds aren't readily apparent in the benchmarks in this article's chart, they become more noticeable as you use a Memoright GT for a variety of computing tasks. Still, this SATA SSD's price is roughly 33 times higher per GB than the Scorpio Black.

One benchmark result that demonstrates how SSDs differ from hard drives is the random access time, which is the average time it takes in milliseconds for a drive to find and retrieve data. Because an SSD has no moving parts, it doesn't have to wait for a disk to spin around as it accesses a file—a file that may be stored in pieces around the drive's media, all of which must be read. Hence, you don't need to defragment SSDs.

Speaking of the chart, I've added comparative results from WD's 300GB VelociRaptor (\$299), the new king of the hard drive hill. We'll cover this very unusual desktop drive in the Ovation section in next month's issue.

(Special thanks to distributor DVNation.com for the SSDs and to Western Digital for the hard drives.) ■

Hard Drives & SSDs	WD Scorpio Black	Samsung SSD	Memoright GT SSD	WD VelociRaptor
Avg. read rate (MBps)	64	147	117	109
Avg. write rate (MBps)	63	63	119	107
Random access (ms)	14.9	0.1	0.1	7.1
PCMark Vantage				
Hard Drive score	3800	19700	12900	6500
Vista startup (MBps)	16	107	63	23
Application loading (MBps)	4	62	22	8

Noteworthy Digital Music Players

Archos 105

SPECIFICATIONS

Capacity	2GB
Physical Dimensions	3.3 x 1.8 x 0.3 inches (1.8oz)
Screen Size	1.8 inches
Battery Life*	Up to 18 hours of audio; two hours of video
Operating System....	Windows Me/2000/XP/Vista/OS X
Memory Type	Flash

*Approximate

One are the days when the majority of digital music players only played your favorite tunes. Now there are devices that can load photos and videos, help you organize your podcasts, and let you listen to FM radio. When it comes to digital music players, however, it seems that iPods are all anyone can talk about. But there are plenty of noteworthy players out there that aren't manufactured by Apple. These players come in all sizes, colors, and capacities, and each has something to offer a certain type of consumer.

Looking at features such as capacity, interface, and price, and without overlooking the audio, video, and photo qualities, we determined who would benefit most from each kind of player. We also looked at the unique features each player has to offer. Here, we will suggest digital music players that can best meet the needs of your budget, your activities, and your multimedia collection.

Archos 105

One of the better digital music players under \$100, the 2GB Archos 105 will appeal to the budget music lover. For \$89.99, you get a device that can load your music, videos, and photos. The Archos 105 is thin, smaller in height and width than a driver's license, and an ideal companion for a run or a bike ride. While it doesn't have all the bells and whistles of the players that reach beyond the \$100 range, it performs well at the tasks it can carry out.

The volume range for the Archos 105 is wide, but the lower

volume levels were hard or impossible to hear. At high levels, we heard a little distortion, but the audio sounded crisp in the midranges. The picture and video quality on the 1.8-inch OLED (organic light-emitting diode) color screen is better than we expected for the price; however, it isn't nearly as impressive as we've seen in more expensive players.

The interface lacks finesse, with chunky-looking icons, and it is somewhat difficult to navigate. For instance, don't expect the Menu button to get you back to the main menu. The Archos 105 has proprietary software called ArchosLink (www.archos.com/archosphere), but it also supports other programs, such as Windows Media Player. It's compatible with audio formats such as MP3, WMA (Windows Media Audio), protected-WMA, and WAV, and it also supports WMV (Windows Media Video) files and JPEG (Joint Photographic Experts Group) files.

iriver E100

The feature that stands out most on the 8GB iriver E100 is the presence of external speakers. Not because the quality is exceptional (it's fair, at best), but because they are actually included. Very few digital music players have this feature, probably because it's difficult to offer a high-quality set at such a small size. The E100 also features an FM tuner (20 presets), a microSD card slot for expanding the memory, and line-in recording capabilities.



The audio quality of the E100 in the midranges is quite good. It offers a broad range of volume levels, but we heard some distortion in the highest and lowest volume levels. The 2.4-inch color screen offers full, rich colors for photos and videos, but the objects appeared pixelated and rough around the edges. The E100's menu is more elegant than the Archos 105, but the menu and controls lack simplicity. It's often difficult to know which arrow and button you're supposed to press. Available in black,

iriver E100

SPECIFICATIONS

Capacity	8GB
Physical Dimensions	3.7 x 1.9 x 0.4 inches (2oz)
Screen Size	2.4 inches
Battery Life*	Up to 17 hours of audio; five hours of video
Operating System	WinXP/Vista
Memory Type	Flash

*Approximate



Sansa View	
SPECIFICATIONS	
Capacity	.8GB
Physical Dimensions	3.25 x 1.95 x 0.35 inches (2.9oz)
Screen Size	2.4 inches
Battery Life*	35 hours of audio; seven hours of video
Operating System	WinXP/Vista
Memory Type	Flash
*Approximate	

BUYING TIPS

Consider what you'll be doing while you use your MP3 player.

If you want to listen to tunes while you work out, you'll benefit from a small player with flash memory. For long layovers and traveling, find a player that lets you watch movies and TV shows.

white, sky blue, and pink, the E100 has a clean-looking appearance and rounded corners, which we think makes it look chic and trendy.

The iRiver Plus 3 software comes with the player, but the E100 also supports files from services such as Rhapsody, Napster, and Yahoo! Music. Compatible audio files include MP3, WMA, ASF (Advanced Streaming Format), OGG (Ogg Vorbis), and FLAC (Free Lossless Audio Codec) formats. The E100 also supports video formats, such as MPEG-4 SP (Moving Picture Experts Group-4 Simple Profile) and WMV9 and photo formats, such as JPEG, BMP, PNG (Portable Network Graphics), and GIF (Graphics Interchange Format).



The Sansa View gives the value hunter a lot of bang for his buck. In addition to playing music, videos, and photos, this midpriced device includes other features, such as an FM tuner, voice recording, and support for microSD and microSDHC (Secure Digital High Capacity) cards.

The sound quality on the Sansa View is very good, but the bass levels don't come through as well as we would have liked. Also, the Sansa View's volume level can get

very loud, but not very soft. Overall, however, the sound quality is above average.

The 2.4-inch color screen displayed rich, bright colors in photos and videos. This is a big plus for this particular player because the size, weight, and excellent battery life of the Sansa View make it more attractive to consumers who are looking for an affordable video player, and not just to someone who needs a music player just for the gym. A clear plastic coat prevents scratching on the screen. It also prevents images from being as sharp as they could be, but images still looked very good.

Using the scroll wheel to spin through the bright and colorful icons was very enjoyable. The menu includes a specific place for audio books, which only a few players currently offer. The Sansa View is compatible with MP3, WMA, WAV, and DRM-free audio files, and you can download the Sansa Media Converter for files that aren't compatible. This player also supports MPEG-4, WMV, H.264, and DivX video files, along with JPEG photo files. You can download content from sources such as Napster and Rhapsody.

Walkman NWZ-S718FBNC

Don't let the size of this Sony Walkman fool you. This tiny digital audio player produces big and powerful sound. Smaller than a driver's license, this Sony Walkman includes audio technologies such as DSEE (Digital Sound Enhancement Engine) and Clear Bass. According to Sony, these

Digital Music Player Information

	Price	Company	Contact Information	URL	Notable Features
Archos 105	\$89.99	Archos	(866) 489-4718	www.archos.com	<ul style="list-style-type: none"> • Priced affordably • Presents a thin design
iRiver E100	\$159.99	iRiver	(562) 968-9100	www.iriverinc.com	<ul style="list-style-type: none"> • Includes built-in stereo speakers • Offers expandable memory via microSD card slot
Sansa View	\$149.99	SanDisk	(408) 801-1000	www.sandisk.com	<ul style="list-style-type: none"> • Long estimated battery life for audio • Helpful Sansa Media Converter
Walkman NWZ-S718FBNC	\$199.99	Sony	(877) 865-7669	www.sony.com	<ul style="list-style-type: none"> • Effective integrated noise-cancelling • Convenient intelligent shuffle features
Zune	\$249.99	Microsoft	(877) 438-9863	www.zune.com	<ul style="list-style-type: none"> • Excellent audio and video quality on a 3.2-inch color screen • Offers wireless synchronization

Sony Walkman
(NWZ-S718FBNC)
SPECIFICATIONS
Capacity8GB

Physical Dimensions3.25 x 1.7 x 0.5 inches (1.9oz)

Screen Size1.8 inches

Battery Life*33 hours of audio; eight hours of video

Operating SystemWinXP/Vista

Memory TypeFlash

**Approximate*
Zune
SPECIFICATIONS
Capacity80GB

Physical Dimensions4.3 x 2.4 x 0.5 inches (4.5oz)

Screen Size3.2 inches

Battery Life*30 hours of audio; four hours of video

Operating SystemWinXP/Vista

Memory TypeHard Drive

**Approximate*

particular technologies produce CD-quality audio, while restoring the higher sound frequency lost when making compressed music files.

The Clear Bass technology ensures the bass is enhanced without distortion, while Clear Stereo technology is designed to minimize signal leakage from one channel to another. This Sony Walkman has noise-cancelling abilities, but it can only be used with the supplied EX Quality Headphones. Luckily, the headphones are more comfortable than typical supplied headphones, and the noise-cancellation feature worked very well.

The interface of this Sony Walkman is crowded with numerous buttons, but the menu is user-friendly and well-designed. This player has regular shuffle, as well as Time Machine shuffle, which lets you shuffle songs from a randomly selected year. Initial Search is a feature designed to help you quickly find songs using the first letter of the song, album, or artist. Although there likely won't be many people who purchase this Walkman solely for the video capabilities, we should note that the 1.8-inch screen displays a great image, but the size is definitely not ideal for a lot of video and photo viewing.

This Walkman supports MP3, WMA, AAC-LC (Advanced Audio Coding-Low Complexity), Linear PCM (pulse code modulation) audio files, along with MPEG-4 and M4V (MPEG-4 Part 2) video files. It also displays JPEG photo files. The battery life (33 hours of audio), coupled with the diminutive size and the FM tuner, make this device a great workout companion. There is not, however, support for a memory card, voice recording, or podcast management.

Zune

The Zune is simply a great device for audiophiles. It offers several features that the smaller players can't, starting with its massive 80GB capacity. The Zune provides

subscription music support, a 3.2-inch color screen for widescreen video playback, photo viewing, and audio and video podcast support.

The Zune has an FM radio that is RBDS (Radio Broadcast Data System)-enabled, meaning that it can display station call letters, genre, and the currently playing artist and song. The Zune also has built-in Wi-Fi capabilities, which let it connect to a wireless home network and share music with other Zune devices. You can also stream content from your Zune to your Xbox.

Not only does the Zune offer several advanced features, but the audio and video quality is excellent, as well. The volume level doesn't get as soft as other players, but the quality of the audio is well above average. Additionally, images from pictures and videos come across bright, clear, and detailed on the widescreen display. The menu and the Zune Pad (Microsoft's name for the button controls and touchpad) make wading through the various functions, settings, and options both fun and easy.

The Zune offers a large collection of compatible file formats, including AAC, MP3, WMA, Protected WMA, and WMA lossless. Supported video files include WMV, MPEG-4, DVR-MS (Digital Video Recorder-Microsoft), and H.264. It also supports JPEG photo files.


Tune In

Digital audio players are clearly so much more than their name suggests. Because you have such a variety of features to choose from, consider where you'll be going and what you'll be doing with your music player. This can help you narrow down the selection and choose which player will be a lasting traveling, biking, or viewing companion. ■

BUYING TIPS

Don't judge an MP3 player by its headphones. Most headphones that come with MP3 players are average at best, and you'll benefit from purchasing a more comfortable pair. With a little hunting, you can find a pair of headphones that fits well and is comfortable to wear for long periods of time.



CarMD® Handheld Automotive Device & Software Kit • Under \$100 • www.carmd.com

Get Road Trip Ready

CarMD Helps Diagnose Hidden Engine Problems From Home Or On The Road

How many times have you seen the "Check Engine" light on your car's dashboard and worried what it meant? Should you pull over? Call a tow truck? Drive straight to the mechanic? Maybe it's just a loose gas cap. Thanks to the revolutionary CarMD handheld device, now virtually everyone who owns a vehicle can quickly and easily solve automotive repair mysteries—right from home.

How It Works

When your car's "Check Engine" light appears, plug the CarMD handheld device into your vehicle's Data Link Connector. (You can find the connector under the dashboard on all 1996 and newer vehicles.)

Within a few seconds, CarMD's built-in LEDs let you know whether you can resume driving (Green = OK; yellow = possible problem; red = service required).

To learn more about your car's problem, connect CarMD to your PC using the included software and USB cable. CarMD customers gain free access to an extensive online database (www.carmd.com) that helps diagnose the cause and estimate repair costs to help you save time and money and keep your mechanic honest.

Features & Benefits

- CarMD works on 1996 and newer OBD2 cars, light trucks, SUVs, and minivans—foreign and domestic.

- The CarMD handheld device helps buyers identify lemons at used car sales lots.
- Lifetime software updates keep your CarMD device up to speed on car trouble codes.
- CarMD includes toll-free access to ASE Certified Techs.
- Great gift for college-bound students!
- Plus, *Smart Computing* readers get \$10 off when you purchase online at www.CarMD.com using promo code: SmartSept.



Software Reviews

\$79.99

Microsoft

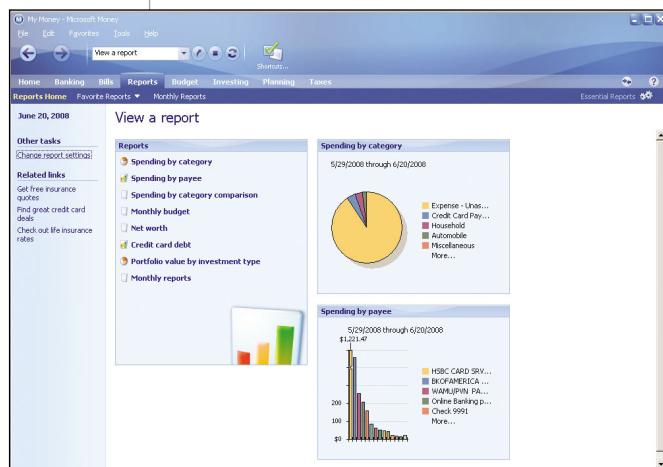
(800) 426-9400

www.microsoft.com

Key Benefits:

- Integrates with online banking services
- Nice charting and reporting features

Systems Supported	
	Windows Vista
	Windows XP
	Windows Me
	Windows 98
	Mac
	Linux



Money Talks

The main menu is neatly arranged into logical categories such as Banking, Bills, Reports, and Budget, with subcategories for each. These are tied nicely together. For example, once you download your bank account data,

Manage Finances With Ease

Microsoft Money Plus Premium

Over the past few years, Microsoft Money has become a popular personal finance program. This newest release strengthens its proficiency with online banking and has some features information freaks will love.

Money installs easily, and the layout is sensible. One thing that may bother privacy mavens is the need to use a Windows Live ID. One isn't required, but you won't have access to all online features without one. Microsoft would likely argue that this makes sessions more secure, but there are ways to ensure security without requiring a proprietary login.

We tested Money Premium because it targets the financial issues we face—accounts, bills, taxes (support, not filing), financial planning, and more. It also comes with free perks such as credit monitoring (one year from Experian) and financial newsletters (subscriptions are limited). The less-expensive, Deluxe version offers a free trial: Premium does not.

The interface hasn't changed much from previous versions, and importing account info from previous versions works well—provided you are not changing editions. If you are, especially if you are downgrading from Money Home And Business, expect some data loss.

Money makes entries available as potential payees for bills. It's also pretty intuitive. For example, if a bill is not fixed, you can have Money estimate it based on previous bills.

This integration helps Money's charting and reporting features to be really superb. One new reporting tool, Insights, provides pop-up snapshots and alerts about your finances (including when your spending patterns miss the bull's-eye on your budget).

Online Time

Money also offers a wealth of Web-based information integrated into the interface, such as financial planning advice, stock tickers, and more. Running the program, we felt like we were experiencing a hybrid between MSN's financial site and a money-management tool. Unfortunately, it also serves up financial ads.

Money's Internet-savvy nature shows with online banking, as well. Money can pay your bills online through your bank account if you have online bill pay set up. If you have an automated transaction download service from your bank (some charge for it), Money will connect and grab that data without a glitch. If you don't, Money will set up the account but generate an error message, leaving you with an empty transaction register. (Hint: Click the account name to open it and select Connect To Bank, and you can visit the bank's Web site and manually pull transactions into Money using Statement Download format.)

Spare Change

Money misses the mark in other places, such as offering to simplify names for imported bank ledger transactions (for example, changing "PET SUP" to "Pet Supplies"). Thankfully, Money does a good job of figuring out into which category (groceries, gas) transactions fall, even if they have odd names.

Overall, we see Money as a great product for highly connected, information-driven types. For those who struggle to balance a checkbook, the program may be overwhelming. ■

BY JENNIFER FARWELL

Software Reviews

\$79.99 for one year of access on up to 3 PCs

Multiplicar Negócios

Contact Via Online Email Form

<https://secure.beanywhere.com/en>

Key Features:

- Simple, flash drive-based solution for remote access to your PC

✓ Systems Supported
Windows Vista
Windows XP/2000
Windows Me
Windows 98
Mac
Linux

Free with Google account

Google
(650) 253-0000
www.google.com

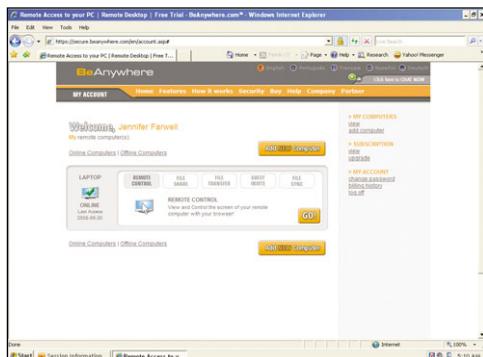
Key Benefits:

- Free and easy, multi-user, online data crunching
- Detailed revision tracking

✓ Systems Supported
Windows Vista
Windows XP/2000
Windows Me
Windows 98
Mac
Linux

Stay Connected

BeAnywhere Drive Remote Access



Once you log in with the password you created, a remote display of your home or office Desktop appears on the PC from which you are working. You can access anything—including files and programs—and you can transfer files back and forth between your remote PC and the one you are working on or share files with others. You can even let others have access to your PC.

BeAnywhere works a lot like GoToMyPC (\$405/year for three PCs; www.gotomypc.com), albeit without some of GoToMyPC's collaboration-oriented tools. The interface also isn't as elegant as we think it could be (it looks best in full screen mode), and if you try to run applications installed on your PC, they move a little slowly (use them on the local PC if you have them). Nevertheless, at approximately 1/5 the price of the above-named competitor with a flash drive you can also use for storage, the savings will outweigh the minimal drawbacks for cost-conscious consumers. ■

BY JENNIFER FARWELL

With the BeAnywhere Drive, you can access your home or office PC from any Internet-connected PC, anywhere in the world. Initially, you use a provided 1GB flash drive to install the remote server on your PC. (NOTE: *The flash drive-based version of BeAnywhere will be available at retail stores in October.*) When you travel, leave your PC up and running, go to any other PC, and insert the thumb drive. (Open the drive in Windows Explorer if the interface doesn't pop up.)

Online Grid Software

Google Spreadsheet

Google Spreadsheets gives you much of the functionality of other spreadsheet programs, but with online access. There's nothing to install—just sign up for a free Google account at docs.google.com. After signing in at docs.google.com, click New and Spreadsheet.

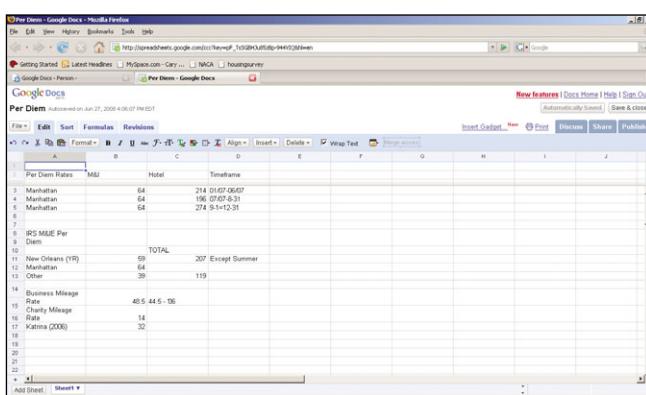
With Google Spreadsheets, you can import or cut and paste data from existing spreadsheets or compatible files, such as CSV (comma separated values) files, or you can input new info. Once the data is in the application, you can easily rearrange, sort, and apply formulas to it as you would in other spreadsheets.

So far so good, but Google Spreadsheets does more than that. You can publish spreadsheets online for the world to access (but not edit) with a click of the mouse. If it is a collaboration, you can share the spreadsheet by invitation.

(Users will need a Google account to make changes.) Best of all, Google tracks all changes made to your spreadsheet, no matter who makes them. If you discover an error, you can backtrack or revert to an earlier version.

A few of the features are clumsy, but not unmanageable. The revision tracking alone makes this product worth a try. ■

BY JENNIFER FARWELL





Microsoft Pledges To Support Windows XP Through 2014

Microsoft has been trying to sound the death knell for Windows XP ever since it released Windows Vista to much fanfare back in January of 2007. But due to popular demand, the company is now pledging to support the aging OS (operating system) through 2014. Although the decision was made primarily to accommodate business customers that are in no hurry to upgrade, it will benefit all WinXP users as it means continued availability of security patches and other updates.

Bluetooth Security Patch For WinXP Rereleased

Microsoft recently released updates for WinXP and Vista to patch a Bluetooth security flaw which could allow someone within range of a Bluetooth-equipped PC (around 30 feet) to seize control of it (tinyurl.com/5xroo4). However, it soon found that the WinXP version of the patch (for systems with Service Pack 2 or 3 installed) didn't work, so the patch has been patched and rereleased. It's available for download via Windows Update.

Windows Live Search To Be Standard On HP Consumer Systems

Beginning in January 2009, all of HP's consumer-oriented desktop and notebook systems will include Microsoft's Live Search as the default search engine. The systems will also ship with a customizable Microsoft-designed Live Search toolbar that's based on SilverLight, Microsoft's answer to Adobe Flash.

Microsoft News

MSN Music Tracks Get A Stay Of Execution

Microsoft has announced it will continue to authorize music purchased from the now-defunct MSN Music service through at least 2011. This reverses an earlier decision to shut down the MSN Music DRM (Digital Rights Management) servers as of Aug. 31, 2008, which would have forever tied the songs to the computers they were on when the deadline struck. But thanks to this reprieve, anyone that bought MSN Music tracks will have three more years to transfer the files to a new computer without losing the ability to play them.

Original Microsoft Employees Reunite For Update Of 30-Year-Old Photo

No, this isn't the cast of "That '70s Show." Way back in 1978, just before Microsoft moved from its then-headquarters of Albuquerque to Washington state, 11 of the company's first 12 employees got together to pose for a group snapshot.

This year, all but one (Bob Wallace, who passed away in 2002) got together to reminisce about old times and pose for a new photo. This included Miriam Lubow, an employee who couldn't make the original shoot due to a snowstorm.

A lot has changed in 30 years, including hairstyles and fashions, and most have since moved on to other endeavors, including Bill Gates, who retired this summer to focus on philanthropic pursuits.



Microsoft Files For Patent On Device Manners

You can't always count on people to exhibit good manners when using personal technology. But Microsoft has filed a patent that may one day allow devices to follow rules (or at least good etiquette) all by themselves.

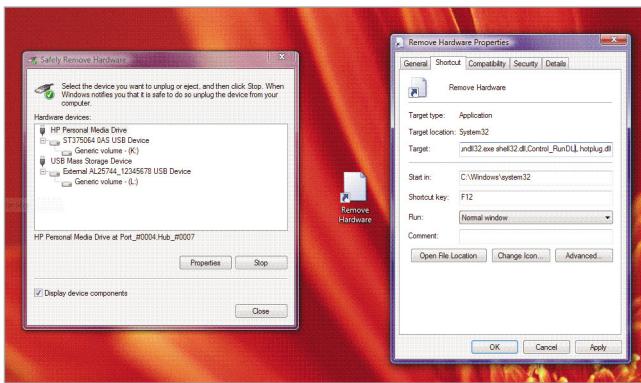
The patent is for a technology dubbed DMP (device manners policy), which could allow things such as mobile phones, digital cameras, and the like to receive instructions and automatically change their behavior depending on the setting in which they're used. For example, a mobile phone might turn itself off in a hospital or on a plane, or switch to vibrate in a movie theater. Similarly, a camera could disable itself anywhere that photography was prohibited, such as in a museum or a sensitive workplace.

DMP isn't likely to find its way into products any time soon—getting it to work properly given the sheer number and variety of devices available won't be easy, and some people feel the use of technology comes with too many restrictions already (take renting a movie online, for example). But if the technology ever comes to fruition, our personal gadgets may practice good manners even if the people carrying them don't.

Windows Tips

Make A Shortcut To The Safely Remove Hardware Dialog Box (WinXP & Vista)

If you configured WinXP or Vista to optimize removable storage devices for performance, you need to use the Safely Remove Hardware dialog box to stop devices like USB hard drives or flash memory drives before you physically disconnect them (lest you risk data corruption).



But while the Safely Remove Hardware dialog box is available from the Windows tray, finding its icon quickly can be difficult, especially if you have a lot of other icons there. You can save time by creating a shortcut and a hotkey that will instantly display the Safely Remove Hardware dialog box. Right-click the Windows Desktop and then choose New and Shortcut. Type `RunDll32.exe shell32.dll,Control_RunDLL HotPlug.dll` into the space provided and then click Next. In the next space, replace `rundll32` with a suitable, descriptive name such as "Remove Hardware," and then click Finish.

To make accessing Safely Remove Hardware even more convenient, you can assign a keyboard shortcut, as well. Just right-click the Shortcut link you just created and click Properties. On the Shortcut tab, click in the Shortcut Key box and press the key you want to use in combination with CTRL-ALT (for example, pressing R will produce the shortcut CTRL-ALT-R), and click Apply and OK. In the future, you'll simply have to press your designated key combination to summon the Safely Remove Hardware dialog box. Follow the instructions in the box to remove hardware.

Open Command Window From Any Folder (Vista Only)

When you need to access a command line window in Vista and launch it from the Start menu, it automatically opens in the personal folder of the logged-in user. If you'd rather open a command line window in a specific folder, Vista offers an easy way to do it. Just hold down the shift key while right-clicking the folder, and an Open Command Window Here option will appear.

Use Vista's Parental Controls To Get Activity Reports Even Without Setting Access Restrictions (Vista Only)

You probably know that Vista has a built-in parental control feature that will let you restrict access to the Internet, certain programs and games, or even the entire computer. But you can still get activity reports to keep tabs on what your child is doing with the computer even if you don't necessarily want to block access to anything.

To set this up, open the Control Panel from the Start menu and click Set Up Parental Controls For Any User. Click the account you want to monitor and make sure Parental Controls and Activity Reporting are both set to On. Now click the Windows Vista Web Filter link, click Allow All Websites And Content, and click OK. To make sure you're not blocking anything, verify that the list under Current Settings reads Allow All, Off, Off, Off, and then click OK.

Now you will receive weekly reminders to view the activity report via the Windows tray. The reports will display Web sites visited, programs run, and how much time was spent on the computer. (If you'd prefer to get the reminders daily, click the Family Safety Options link in the Choose A User And Set Up Parental Controls window, select Every Day, and click OK.)

Easily Share, Sync & Remotely Access Folders With FolderShare (WinXP & Vista)

Microsoft's Windows Live FolderShare Beta (www.foldershare.com) is a free utility that makes it simple to share and synchronize files across multiple computers. After you install it on two or more computers and create an account (you can't use an existing Windows Live account yet), you can use FolderShare's browser-based interface to select up to 10 folders you want to have available on every computer you use.

After the folders you select have been duplicated on your other systems, FolderShare will monitor them and make sure that they each have the most recent versions of every file. FolderShare doesn't use Windows built-in file sharing feature, which can be tricky to configure especially if you have a firewall. Instead, it does its transfers and synchronization over an Internet connection, so it will work even when a computer isn't on your home network.

FolderShare also offers a handy way to share certain folders with friends and family members. Provide the email addresses of the people you want to share with, and FolderShare will send them an invitation. You can also easily create permissions allowing certain people to only read files, while others can modify and delete files, or add new ones.

Finally, FolderShare gives you a way to get to files on a computer when you don't have it with you. A Remote Access feature will let you browse and download files from any system running FolderShare, even if you haven't previously marked the folder as shared.



Windows Vista Make The Sidebar Work For You

“What the heck is that?”

One of the first things you may have noticed about Windows Vista was a broad stripe along the right edge of the screen. It faded in and out of view as you moved your mouse pointer over it. Moreover, it contained a column of what looked like big icons.

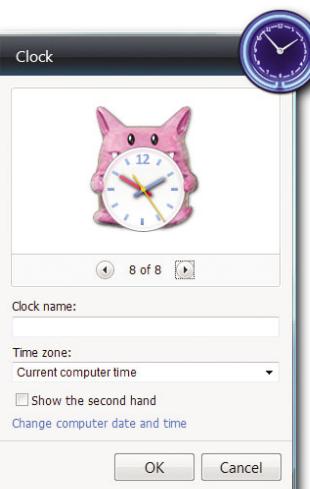
This is the Sidebar, which is one of Vista's more useful new features. It's a sort of dock for Gadgets, which do indeed resemble big icons. But whereas some icons on your Desktop launch applications and others act as shortcuts to file folders or documents, Gadgets play a somewhat different role.

Similar to doodads such as Apple's Widgets in Mac OS X and Stardock's DesktopX Widgets, Gadgets are simply small applications that hang out on your Desktop. They're graphical, very simple to use, and tightly focused on doing just one task.

One Gadget, turned on by default, looks like an analog clock. Another gives you a brief overview of the weather in your area. Still another Gadget presents you with up-to-the-minute news headlines from a short list of sources.

Some Gadgets have settings you can tinker with. Look next to each for a little wrench icon and then click it.

Now imagine being able to choose among hundreds of Gadgets to tailor your Sidebar to your individual needs. See the potential?



To look for new Gadgets to add, either right-click a blank spot on the Sidebar and choose Add Gadgets, or click the plus (+) sign at the top of it. You'll see a small gallery of choices, including any Gadgets you have previously closed. You can double-click a Gadget to move it to the top of the Sidebar, or you can click and drag it wherever you like.

The Gadget Gallery is really only the tip of the iceberg. For even more choices, such as an eBay browsing Gadget or an Internet radio player that doesn't require you to keep your browser open to a certain page, click the Get More Gadgets Online link. This will open a Microsoft Web page, although not all of the available Gadgets there are from Microsoft.

From here, you can click the See Microsoft And Partner Items link for Gadgets that are more official than others and in many cases are of higher quality. The See All Gadgets link next to it gives you a broader array of choices from third parties. As with any wild and woolly frontier of user-generated content, you may have to pick through a lot of weeds before you find any roses.

Windows Vista comes with a Sidebar, which is a sort of utility belt for little, graphical applications called Gadgets.

Add New Gadgets

Of course, you might not want to keep the Gadgets Vista gives you by default. After all, if there's a perfectly good digital clock at the bottom of the screen, do you really need an “analog” one at the top? To get rid of a Gadget you don't want to use, and incidentally make room for new ones, click the tiny “X” icon next to it. Another route is to right-click it and select Close Gadget.





You'll find plenty of cool, free Gadgets online. Customize your Sidebar to make it work for you.

here. It may help to pay attention to the number of blue stars in each Gadget's rating, which gives you an indication of how much other users liked it (the more blue stars, the better). Double-click a Gadget to see more information about it, along with short reviews and comments submitted by users.

Choose a Gadget that looks appealing and then click Download. (You might see a warning message if you've selected a third-party Gadget. There's no way to guarantee that such a Gadget is totally innocuous, but if it's highly rated and has been downloaded thousands of times, it's probably OK.) Allow Windows Sidebar to open the download by clicking OK and then Install.

If you don't see a Gadget you want, use the Find More Gadgets search field at the top to search by keywords. Another avenue is to direct your browser to gallery.live.com, which is another Microsoft repository of Gadgets and other content.

Note that you can add more than one copy of a Gadget to your Sidebar, such as if you need another Feed Headlines (or RSS Reader) Gadget to display all of the headline feeds you receive. You also might want to keep tabs on the weather in multiple cities, for example, if you travel a lot or have relatives living around the country.



The Windows Sidebar Properties window is the place to tell it how to behave.

Customization

Microsoft wisely made the Sidebar very easy to configure. If you want to reorder your column of Gadgets, for instance, simply click and drag them up and down the Sidebar. To make a Gadget more translucent so it doesn't block your view of things behind it on the screen, right-click the Gadget, select Opacity, and then choose a different value.

You can alter the way certain Gadgets work, such as by changing the photos the Slide Show Gadget displays. To customize a Gadget, hover your mouse pointer over it and then click the tiny, white wrench icon next to it. Alternatively, right-click the Gadget and choose Options. Before you can customize the Feed Headlines Gadget in this way, you may need to click its View Headlines link to enable it.

Actually, your Gadgets don't even have to reside on the Sidebar. Click and drag one onto your Desktop. (If you right-click

it after moving it to the Desktop, you'll find a new context menu option: Always On Top.) To place the Gadget on the Sidebar again, simply drag it back. You also can right-click a Gadget and choose Detach From Sidebar or Attach To Sidebar, as applicable.

If you add too many Gadgets, you won't be able to see them on the screen all at once. Don't worry; none of your Gadgets will be lost. The Sidebar will simply divide itself into columns of Gadgets that you can flip through like the pages of a skinny book. At the top of the Sidebar, click the Right and Left arrow icons to shift through your list.

You'll probably want to move the Gadgets you use most to the first "page" of the Sidebar, so they'll be visible every time you start your PC. To do this with a Gadget that is on the second or later pages, first drag it to the Desktop. Next, click the left arrow at the top of the Sidebar to move back to its first page. Finally, drag the Gadget from the Desktop to the Sidebar.

General Settings

To access the settings of the Sidebar itself, right-click an empty part of it and select Properties. You also can click Start, Control Panel,

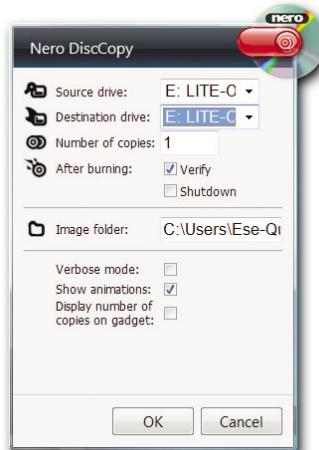
Although the Sidebar tends to be a feature that many users disable right away, it really does deserve a chance to prove its worth.

Appearance And Personalization, and Windows Sidebar Properties.

In the Windows Sidebar Properties window that appears, you can tell the Sidebar to roost along the right or left side of the screen, according to your personal preference. If you use more than one monitor, this settings panel also will let you move the Sidebar to the screen of your choice.

And should you want the Sidebar to permanently stay on top of any open windows, click the appropriate checkbox. If you enable this setting, it's a good idea to right-click each Gadget and set its Opacity to a lower level to keep it from unduly blocking your view. Also, note that you can bring the Sidebar to the forefront at any time by pressing the Windows Key and the spacebar simultaneously, which cuts down on the need to keep the Sidebar on top all the time. In other words, if you have other application windows open, a quick WIN-Spacebar keystroke will show the Sidebar on top of everything else.

Near the bottom of the Windows Sidebar Properties window, you'll see a button that will display a list of the Gadgets currently installed in the Sidebar, along with the version number of each. You can evict Gadgets from the Sidebar by selecting them and clicking the Remove button. And should you accidentally delete a Gadget from the



Some applications come with proprietary Gadgets you can add. They may not automatically appear in the Sidebar, so check the Gadget Gallery after you install a new program.

Gallery by right-clicking it and selecting Uninstall, the button labeled Restore Gadgets Installed With Windows returns the default Gadgets to the Gadget Gallery.

Another Party Heard From

You'll also find that certain software applications come with Gadgets that can do useful things. For example, Nero 8 (www.nero.com) comes with a Gadget with simple controls for ripping CDs. On the other hand, an application's Gadget may not automatically appear on your Sidebar. After you install a new program, right-click the Sidebar and choose Add Gadgets. If there's a new Gadget available, and it looks like something you might want to use, double-click it to add it to your Sidebar.

Although the Sidebar tends to be a feature that many users disable right away (along with the nagging User Account Control), it really does deserve a chance to prove its worth. Now that there's a legion of free Gadgets available online, with more appearing all the time, you might want to think twice about sidelining the Sidebar. ■

BY MARTY SEMS

Close The Sidebar

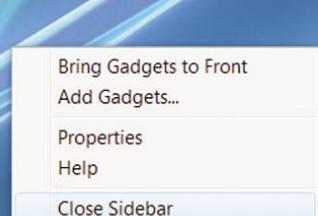
Of course, Vista's Sidebar doesn't excite everyone. As a feature that takes up several inches of space on the Desktop, it uses up real estate that could go to icons, and it blocks the view of your wallpaper. Users with wide-screen monitors may feel OK about dedicating some screen space to the Sidebar. For others who use fullscreen displays with 4:3 aspect ratios (the screen's

width relative to its height), the Sidebar doesn't make as much sense.

To disable the Sidebar, right-click a blank spot on it and choose Close Sidebar. Note that any Gadgets you've moved to the Desktop will remain there even after you've disabled the Sidebar.

If you change your mind later on, you can re-enable the Sidebar. Right-click the

Windows Sidebar icon in the system tray and then click Open. If you don't see the Windows Sidebar icon, click Start, Control Panel, Appearance And Personalization, and Windows Sidebar Properties. Click the box next to Start Sidebar When Windows Starts and then click Apply and OK. Reboot your PC and the Sidebar should appear every time you start Vista. ■



It's very easy to disable the Sidebar and not much more difficult to restore it later.



Windows Vista

Access Your Info Easily With Sync Center

Today, computers are quite affordable. So much so, in fact, that many households have more than one PC. Having more than one computer can be quite handy, but it can also be a nuisance when the file you need is located on the other machine. To make file sharing easier for multiple-computer families and mobile device users, Microsoft included a feature in Windows Vista called Sync Center.

A Closer Look

Sync Center eases the process of keeping information organized among multiple computers, network folders, and mobile devices. It does this by managing defined relationships between devices and automatically syncing files without the need for you to initiate a transfer.

Synchronization, or “sync” for short, describes the process of keeping matched files in two or more locations. There are two primary types of synchronization: one-way and two-way. As you would probably guess from its name, one-way synchronization is a bit like a one-way street: Additions, changes, or deletions made on one device (such as your computer) are replicated on another device (such as your portable music player), but the reverse is not true. In other words, if you change something on the portable music player, the changes won’t appear on the computer.

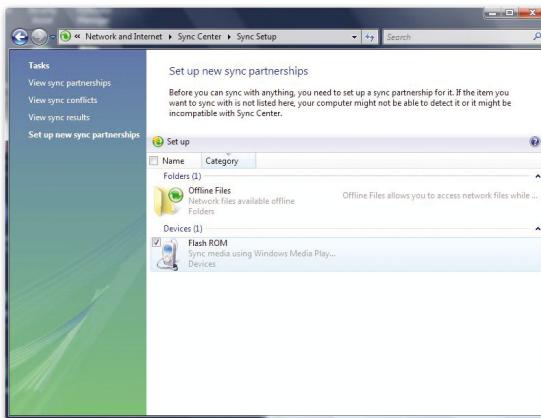
Two-way synchronization lets you exchange data in both directions. Put another way, it doesn’t matter if you modify, delete, or add a file on your laptop or on your PDA; the changes will appear in both locations after a two-way sync. Two-way sync partnerships are most common between a computer and networked folder locations and with computers and PDAs (personal digital assistants).

For users who need the ability to synchronize with networked folders, stay away from Windows Vista Starter, Home Basic, and Home Premium editions; these versions do not support this functionality.

Start Syncing

Before you can synchronize files between devices or between a computer and a networked folder location, you’ll need to create a sync partnership. A sync partnership tells the Sync Center which files and folders to sync and when to synchronize them. In order to set up a sync partnership between a device and your computer, turn the device on and plug it into your computer. Wireless connections are also possible; you’ll just need to establish a connection between the device and your computer.

After connecting the device to your computer, open the Sync Center by selecting Start, All Programs, Accessories, and Sync Center. Next, click Set Up New Sync Partnerships in the



Use the Sync Center to set up and manage sync partnerships between mobile devices or files stored on a network location and your computer.

left pane of the Sync Center. You’ll then see a list of available sync partnerships. Choose the appropriate device and click Set Up from the toolbar. A wizard will appear and walk you through the steps necessary to establish the partnership. After you’ve established a sync partnership, click View Sync Partnerships to sync immediately or to browse the files on the device.

It’s important to note that not all devices are compatible with Sync Center. However, if you have difficulties creating a sync partnership, don’t give up. Instead, try installing the software and drivers that came with the device. Sometimes, a device comes with its own synchronization software instead of using the Sync Center. You may also want to check with the manufacturer of the device to see if it is compatible with Sync Center.

For users with PDAs or smartphones running Windows Mobile, you’ll notice the sync partnership and results

will appear in the Sync Center. However, devices running Windows Mobile actually use the Windows Mobile Device Center for synchronization.

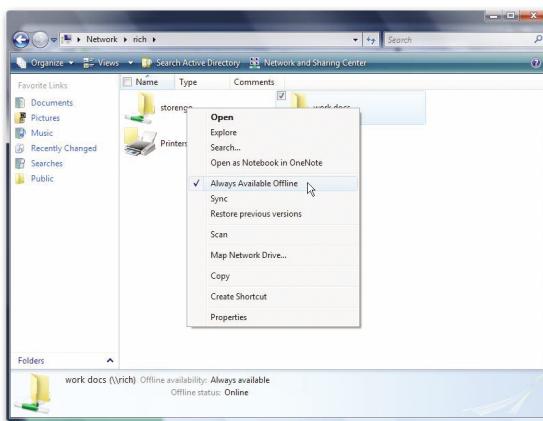
For Offline Files & Folders

As mentioned, synchronization is not limited to syncing information between devices. You can also use the Sync Center to synchronize information that resides on network folders. This type of synchronization is especially handy for users who need access to their files even when they're not able to connect to the network. For example, if you have a file saved on a network folder at the office and you need to access that file while traveling, you can use the Offline Files feature found in Sync Center to access the file while you're away. When you return to the office and can access the network again, the Offline Files feature will synchronize the revised file on your laptop with the one located on the network, thereby ensuring you always have the latest version of the file, regardless of where you're working.

To set up Offline Files, first navigate to the folder containing the file(s) you want to synchronize and then right-click the folder and select Always Available Offline. If you don't want to synchronize the entire folder, you can select individual files in the same manner. After you select Always Available Offline, Vista will set up a sync partnership with the selected folder or file(s).

Once you have created a sync partnership, click View Sync Partnerships to view the details of the partnership from the Sync Center. If you click Sync All from this screen, the Sync Center will synchronize all files tied to all partnerships immediately. If you'd rather schedule the synchronization for a later time, click Offline Files and then choose Schedule. Here, you'll need to select the offline files and folders for which you want to create a scheduled sync. Check the box next to the folders you want to schedule and then click Next. Then, choose when you want the synchronization to occur; you can choose to synchronize At A Scheduled Time (such as every day at 1:00 p.m.) or you can choose to synchronize On An Event Or Action (such as every time you log on to your computer).

Should you wish to initialize synchronization for individual files beyond the normally scheduled times, double-click Offline Files from the Sync Center's View Sync Partnerships screen, highlight specific partnerships, and click Sync.



Right-click a network folder and select Always Available Offline to set up an Offline Files synchronization partnership.

The Sync Center can be useful in a variety of situations and scenarios.

latest pictures of your grandkids to your mobile device. For mobile professionals, this also means you'll always have access to crucial files, even if you need to disconnect from the network.

Power outage protection. When you're using Offline Files, it doesn't matter if your network goes down or if you lose a connection to the network—you'll be able to continue working and accessing your files anyway.

Overcome slowness. Offline Files can also be handy when you're working over a slow connection. Instead of trying to access a file remotely using a connection that is far from efficient, Offline Files can eliminate the slowness and inefficiencies by providing a local copy of the file for you to use.

Keep a backup copy. Whether you're using Offline Files or synchronizing with a device such as your smartphone, you'll always have a duplicate copy of the information residing elsewhere. This can help to protect the data from unforeseen circumstances, such as a broken smartphone or stolen laptop. Even without the device, all of the synchronized data will still be available from another device or location.

Sync Away

By creating sync partnerships and synchronizing regularly, you can effectively eliminate many of the problems associated with trying to manage files between multiple devices and network locations. The Sync Center makes the entire synchronization process a snap, and best of all, it's free for you to explore and use. ■

A Useful Tool

The Sync Center can be useful in a variety of situations and scenarios. Here are a few examples of how the Sync Center can be helpful to you.

Eliminate duplication. By synchronizing files such as your address book, you can eliminate the need to have a separate and disparate file elsewhere. In addition, both locations will always have the latest information, so you won't have to wonder if the data is correct or outdated.

Don't forget. Many of us like to carry photos with us when we're away. By setting up a sync partnership with the folder that contains all of your photos, you'll never have to worry about forgetting to transfer the

Motherboard Chipsets

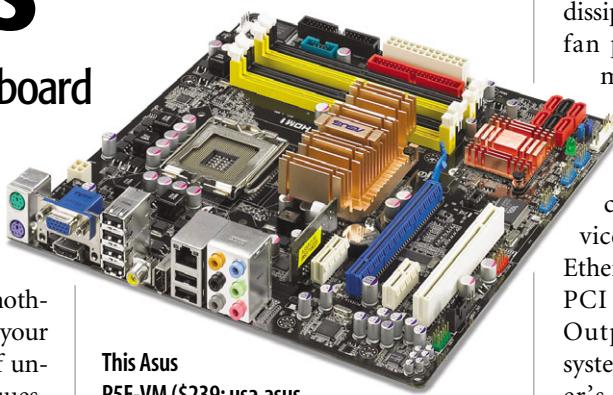
Find The Right Motherboard For Your PC

Shopping for a new motherboard can be a headache. After narrowing available motherboards to those compatible with your processor, you might find yourself unable to make a decision, asking questions about features or components. Your questions can be answered by looking at the chipset the motherboard uses. Different chipsets—and ultimately the motherboards on which they sit—affect the performance of your computer. We'll explain how chipsets work and take a look at three popular chipsets you should consider when purchasing a new motherboard.

Anatomy Of A Chipset

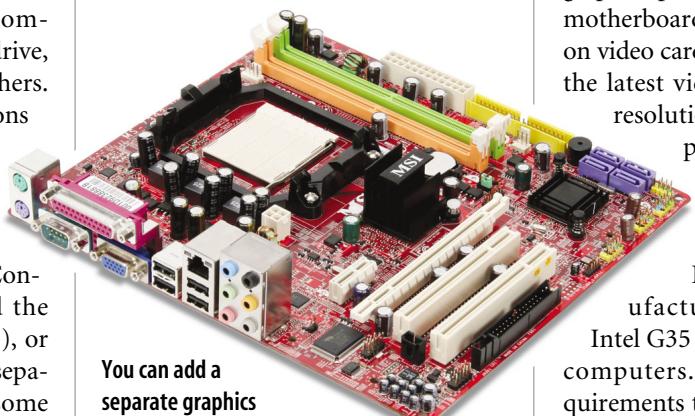
The chipset is a collection of (usually two) microchips on the motherboard that are responsible for controlling data flow between the CPU and components in the computer such as the memory, hard drive, keyboard, and mouse, among others. Here, we will identify the functions of a modern, standard chipset and examine popular chipsets from well-known manufacturers.

The chipset breaks down into two parts: the MCH (Memory Control Hub), or northbridge, and the ICH (Input/Output Control Hub), or southbridge. While the chips are separate entities in most machines, some manufacturers have begun to combine the operations of both into a single chip, relying on the CPU to complete the operations originally assigned to the northbridge.



This Asus P5E-VM (\$239; usa.asus.com) motherboard is equipped with the Intel G35 Express chipset, which supports high-definition resolutions 720p, 1080p, and 1080i.

The northbridge, typically larger physically than the southbridge, lies at the “north” end of the motherboard near the CPU socket. (The CPU performs calculations for your computer’s applications.) The northbridge controls the data flow to and from the CPU, the RAM (random access memory) slots, and the AGP (Accelerated Graphics Port) or certain PCI-E (Peripheral Component



You can add a separate graphics card to this MSI K9A2GM motherboard (which has AMD's 780G chipset) to improve graphics performance, but you won't need to add a graphics card if you simply want to surf the Internet.

Interconnect Express) slots. The slots let users add a video card to the motherboard.

Because the northbridge controls the flow of so much data, it often includes a fan and a metal heatsink that dissipates heat caused by the chip. The fan plugs into a connector on the motherboard, which in turn draws power from the computer’s power supply.

The southbridge, the chief controller of input/output devices, is devoted to the hard drive, Ethernet connections, USB ports, and PCI slots. The BIOS (Basic Input/Output System), which runs basic system processes during the computer’s startup process, also uses the southbridge. Some motherboards have a separate chip, known as a super I/O (input/output) controller, which manages keyboard, mouse, and floppy connections. The Super I/O connects to the southbridge.

We’ll introduce you to three popular chipsets to help you make a better decision when selecting your next motherboard. The Intel G35 Express, AMD 780G, and Nvidia GeForce 7150 chipsets all have an important feature that many chipsets don’t have: an integrated graphics processor.

Many computer enthusiasts opt for motherboards that have a built-in graphics processor because this type of motherboard doesn’t require an add-on video card. If you don’t plan to play the latest video games at the highest resolutions, the built-in graphics processor is all you’ll need.

Built For Speed

Longtime processor manufacturer Intel designed the Intel G35 Express for media-centric computers. It has lower power requirements than many other chipsets. That’s particularly important for home PC builders that are planning to put the computer in the living room: low power consumption often translates to less heat in the system,

which means you'll need fewer noisy fans to keep the computer cool.

The chipset supports Intel's Core 2 Duo and Core 2 Quad processors. What really makes the G35 worthwhile is the Intel Graphics Media Accelerator X3500 chip, which means you don't need to buy a separate video card for your computer. The Intel G35 Express Chipset usually includes the northbridge G35 chip and the southbridge ICH8 chip, as well as the Intel Graphics Media Accelerator X3500 chip.

The G35 chipset supports HDMI (High-Definition Multimedia Interface) output, which means that your PC can send video to your HDTV (high-definition TV) at the 720p, 1080i, and 1080p resolutions that HDTVs support. (Some HDTVs support only the 720p resolution, while others offer the higher resolutions 1080i and 1080p.)

A motherboard that features the G35 chipset has an HDMI port that protrudes from the back of your PC. You can connect the computer to your TV via the same type of HDMI cable you would use to connect your TV to your Blu-ray Disc player or other home-theater equipment.

The G35 Express Chipset is compatible with Blu-ray, as well as HD DVD video formats. To enjoy Blu-ray video, you'll need to purchase and install a Blu-ray drive into your PC. HD DVD is also supported by the G35, but film studios have ceased producing movies in the HD DVD format. Simply put, Intel intends the G35 northbridge to provide crisp HD graphics without slowing down your desktop computer.

Working together with G35 is the ICH8 southbridge. The Input/Output Control Hub lets motherboard manufacturers add up to 6 PCI-E x1 slots (which, in turn, let you connect network adapters and other add-on cards), as well as a PCI-E x16 slot (which lets you add a third-party

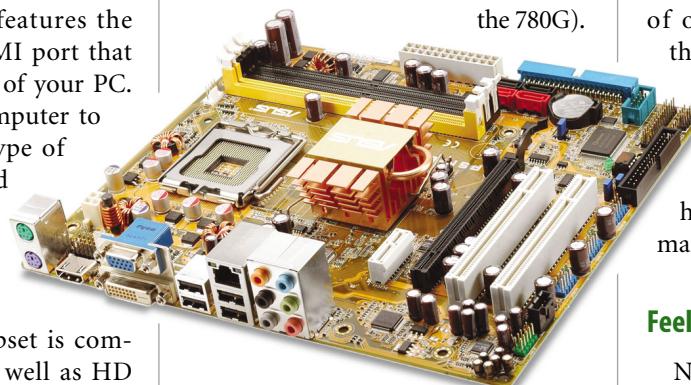
graphics card if you need more graphics power than the built-in graphics processor provides).

The southbridge also supports up to 10 USB 2.0 ports, which means you'll have plenty of ports for your digital camera, keyboard, mouse, and other USB devices. The chip's support for up to six SATA ports lets you add hard drives as your storage needs expand.

Satisfy Your Inner Gamer

AMD designed the 780G chipset to accompany its Athlon 64 and Phenom processors. As with the other chipsets in this article, the 780G chipset supports high-definition video. AMD released the 780 series March 5, 2008, in two versions. The 780G is a powerful northbridge that has a 500MHz clock. The 780V (Value) is a similar chip that has a 350MHz clock speed (which means that

it's a little slower than the 780G).



Nvidia's GeForce 7150
chipset make this Asus P5N-EM (\$75; usa.asus.com) motherboard a good choice for home users.

The 780G northbridge includes the Radeon HD 3200 graphics processor while the 780V includes the 3100 series. This built-in graphics processor can't beat the graphics that expensive add-on graphics cards can produce, but it offers solid graphics for many of today's games, and it has received strong reviews for its gaming capabilities. Also, the GPU will not exclude you from purchasing a separate video card later should you choose to do so. In fact, if you install a video card,

you'll find that the chipset's built-in graphics processor works with the add-on card to provide higher-quality images than either graphics processor could produce alone.

Both 780G and 780V can decode secure data from any high-definition format, including Blu-ray and HD DVD. The 780G also affords users the flexibility of viewing a broad variety of video interfaces such as DVI, HDMI, and DisplayPort.

AMD designed the SB700 southbridge to complement the 780G northbridge with a wide array of features. The SB700 provides support for up to 14 USB ports (12 of which operate at the new, fast USB 2.0 standard; the other two adhere to the older, slower USB 1.1 standard). It also has six SATA ports. Thanks to the chipset's support for so many USB and SATA ports, motherboards bearing this chipset provide plenty of opportunity to upgrade down the road.

SB700 also comes with support for RAID (Redundant Array of Independent Disks), which connects two or more hard drives to increase performance or data volume.

Feel The GeForce

Nvidia offers the GeForce 7150 northbridge and the nForce 630i southbridge. The Nvidia chipset supports the new Intel Core 2 Duo and Quad processors, as well as some older models, such as Pentium 4 and Celeron. The chipset provides support for high-definition video.

The GeForce 7 Series chipset supports PCIe expansion slots and lets motherboard manufacturers add up to three SATA ports. The nForce 630i southbridge also supports 10/100/1000 Ethernet network connections.

Other features for the Nvidia GeForce 7150 and nForce 680i chipset include: support for up to 10 USB 2.0 ports for connecting keyboards, mouse, and USB flash memory drives,

as well as 8-channel, high-definition audio ports.

Choose The Right Chipset

Selecting the right motherboard for your computer is essential, and understanding what features motherboard chipsets offer goes a long way to helping you select the best one. Knowing what you want your

computer to be able to do makes a big difference when selecting a new motherboard chipset. The chipset that accompanies the motherboard will be responsible for the performance of your computer. Some chipsets allow the motherboard to play back high-definition video while others are more attuned to creating high-resolution graphics for computer games. The features of the

chipset make all the difference in selecting the motherboard.

While shopping for a new motherboard can be intimidating, you can ease your worries by knowing what you want your computer to be able to do. Digging into the motherboard's features will help you better build a computer that suits you. ■

BY CHRIS DUNKERK

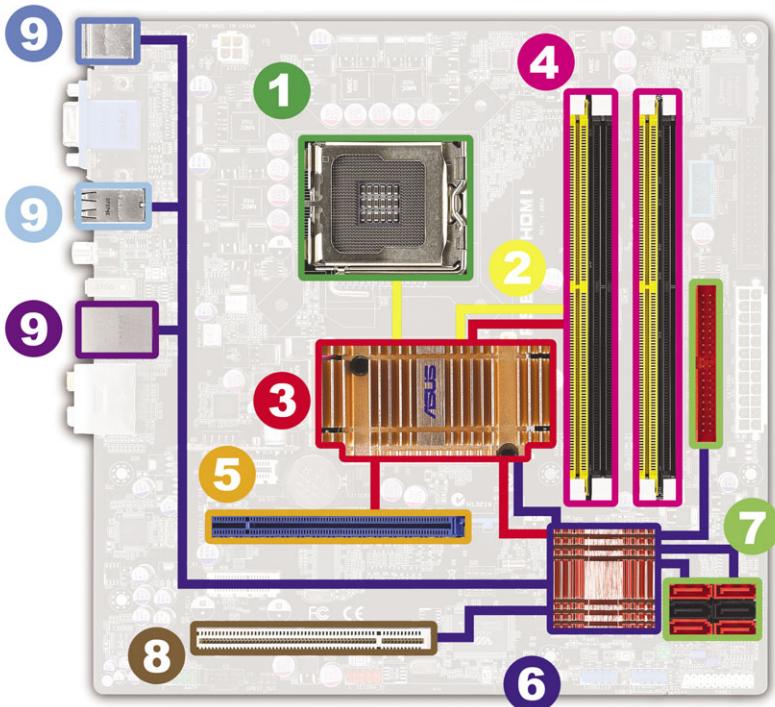
Anatomy Of A Motherboard

Although the CPU is the most well-known computer chip, the motherboard chipset also plays an important role. It communicates with the CPU and directs data to the computer's other components. This illustration shows the components on the motherboard and how they connect to one another.

1 The CPU socket supports the processor, which performs calculations for applications.

2 The FSB (frontside bus) is the fastest of the data transmitters on the motherboard. Typically, it connects the CPU to the northbridge and the RAM to the northbridge, establishing a very fast link between the CPU and the RAM for easier access.

3 The northbridge, or Memory Control Hub, connects fast components such as memory and graphics to the processor, as well as certain PCIe (Peripheral Component Interconnect-Express) devices. The northbridge's proximity to the CPU socket helps to quickly send and receive electrical signals.



4 The RAM connects directly to the northbridge to provide the CPU with quick and easy access to the memory. The CPU doesn't require as fast a link to the hard drive as it does to RAM, so the hard drive relies on the southbridge.

5 High-speed graphics cards connect to the northbridge. These slots, including AGP (Accelerated Graphics Port) slots or the newer PCIe slots, are high-speed, point-to-point channels that connect the graphics card to the motherboard.

6 The southbridge, or Input/Output Control Hub, operates all the slower components on the motherboard, including peripheral devices such as the mouse, keyboard, and BIOS.

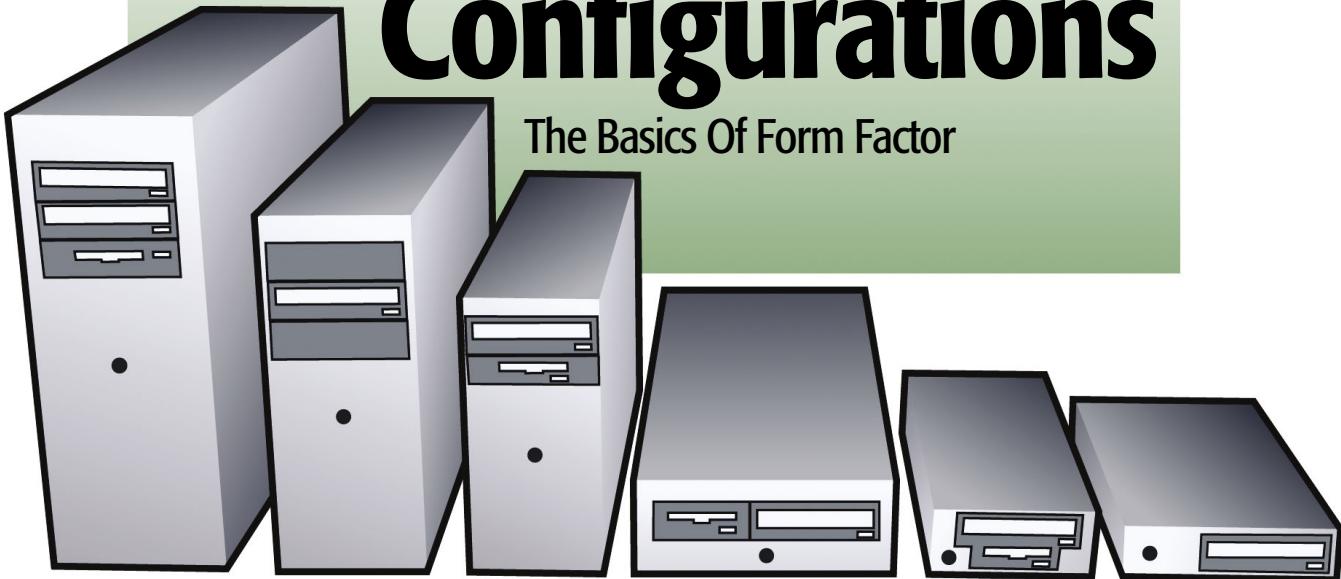
7 SATA (Serial Advanced Technology Attachment) connections link the motherboard to hard drives and optical drives. SATA buses communicate with high-capacity storage devices through a high-speed serial cable.

8 Peripheral component connections run through the southbridge, including one or more PCI slots. Extra PCI slots can be used to install graphics cards, sound cards, network cards, TV tuner cards, modems, or extra ports or connect two monitors to the same computer.

9 Input/output connects run through the southbridge, including FireWire connections, Ethernet, USB 1.1/2.0 ports, and PS/2, which are early connections for the mouse and keyboard on your computer.

Cases & Configurations

The Basics Of Form Factor



Choosing a case is an exciting part of building a computer, but unfortunately, it isn't as simple as selecting the most daring style or striking color. Although aesthetics are important, hardware compatibility is imperative to making the final decision. In this article, we'll help you choose the type of case you need by explaining the relationship between cases and motherboards, discussing the types of cases and motherboards available, and highlighting some of the most popular computer cases you can buy.

Form Factor

In order to choose the right case, you'll first need to understand the term form factor. **Form factor** refers to the physical size and shape of a device or computer component, such as a case or motherboard. Applied to cases, form factor describes the dimensions of the case and the layout of its internal component space, such as the position of the drives. For motherboards, form factor describes not

only the physical size of the board but also the location of its many ports, slots, and other components.

Because they are directly related, both cases and motherboards share form factor names such as ATX or BTX. This helps to indicate their compatibility with one another. The type of case you'll need is determined by what type of motherboard you have or vice versa. For example, if you have an ATX form factor motherboard, you'll need an ATX form factor case.

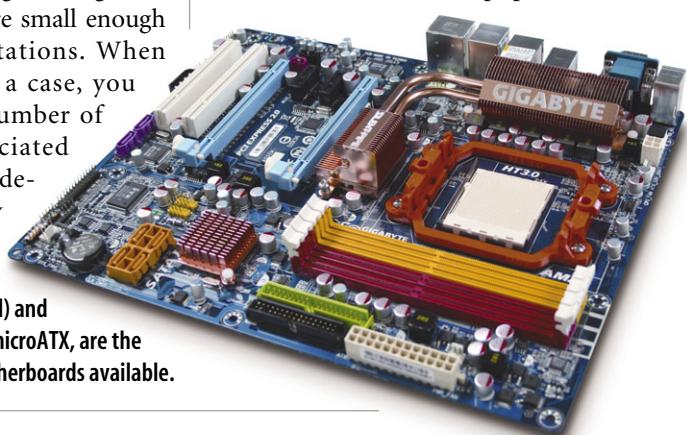
Case Styles

Some cases are large enough for servers while others are small enough for cramped work stations. When you're shopping for a case, you will come across a number of different terms associated with size. Below are descriptions of the many case styles you will

encounter while shopping, along with a quick note about what types of motherboards usually fit inside them.

Minitower. Minitowers average a short 14 inches high and 15 inches deep. They stand upright and can be conveniently placed on top of or below a desk. The smaller size of the case limits the amount of components that can be added to the system, but upgrading is possible. Generally, minitowers house microATX (micro-Advanced Technology Extended) motherboards (we'll discuss motherboard configurations in depth later).

Midsized tower. Midsized towers are one of the most popular case



ATX motherboards (pictured) and their smaller counterpart, microATX, are the most common types of motherboards available.

styles due to their relatively small size (about 17 x 19 inches) and large potential for expansion and upgrading. Some midsized towers can fit an ATX motherboard, but many contain microATX motherboards.

Full-sized tower. Full-sized towers are the largest in the group of tower cases, averaging 21 inches high and 23 inches deep. Their large size makes an easy fit for Extended ATX motherboards, creating ample expansion and upgrade potential.

Desktop. Desktop cases are small (averaging 6 x 16 inches) and sit horizontally, so you can place a monitor on top to accommodate smaller workstations. Many desktop cases can house ATX motherboards, but their compact size makes desktops difficult to upgrade or expand.

Slimline desktop. Slimline cases are thinner and smaller than desktop cases, averaging 3 x 13 inches. Usually, slimline cases can stand upright or lie horizontally like a desktop. Many slimline cases use NLX or MicroATX motherboards, and naturally their small size dramatically limits the possibility for expansion or upgrade.

Small-form factor. Small-form-factor cases are made specifically to house smaller motherboards such as microATX. Their actual dimensions vary by shape, which can range from a cube to a pizza-box or VCR-like style.

Motherboard Form Factors

There have been many motherboard form factors created and utilized, but some motherboards are more popular than others and have become standard. Because some motherboard form factors are more widely used, so, too, are the cases that accommodate them.

AT. The AT (Advanced Technology) motherboard, which was popular from the late '80s to the early '90s, is about 12 inches wide x 11 inches deep. Its large size created issues as it battled with the drive bays for physical space inside the computer case.



Thermaltake's Xaser VI (\$269.99; www.thermaltakeusa.com) has a pull-out motherboard tray to make building easier.

Baby-AT. At approximately 8.5 x 10 inches, the Baby-AT was smaller than the AT motherboard and was meant to replace it. Shortly after, however, the Baby-AT became less popular due to its layout, which made it too small for progressing processors and heatsinks.

ATX. ATX was introduced in 1995 and averages 12 x 9.5 inches. The layout of its ports and expansion slots has made it one of the most popular motherboards for tower cases. The ATX category includes the microATX and Extended ATX motherboard, which is larger.

MicroATX. The microATX motherboard is similar to its larger counterpart, ATX. The differences include fewer expansion slots on the board and its overall smaller size of about 10 x 10 inches.

NLX. The NLX (New Low-Profile Extended) motherboard was introduced in the late '90s and is an updated version of the LPX (Low-Profile Extension) motherboard, with support for newer technologies. Like LPX, the NLX was designed for slimline cases. It's about 9 x 12 inches.

BTX. The BTX (Balanced Technology Extended) form factor was developed in 2004 with the intention of replacing the ATX motherboard with a new layout that would optimize cooling. It is about the size of an ATX motherboard but has not gained popularity.

A Case Of Popularity

ATX midsized towers are arguably the most common and most popular case style and form factor because they are large enough for expansion and upgradeability, small enough that they can be easily moved, and aren't obtrusive on or under a desk.

ATX form-factor cases, in general, are the most popular among enthusiast and general users alike. Because ATX motherboards are the standard, it isn't surprising that compatible ATX cases have also become the most common.

The multitude of connectors and expansion slots on an ATX motherboard offer potential for expansion and upgrade. Because of this, OEMs (original equipment manufacturers) are using ATX motherboards for products, and case developers are creating ATX cases. With so many ATX supporters, finding ATX-compatible hardware is easy.

Which Case?

When shopping, choose a case that appeals to you visually, but not before choosing a case that is compatible with the rest of your system. Often, you'll need an ATX- or microATX-compatible case. ATX standardization has made it easier for builders to find what they need, and there are hundreds of ATX cases from which to choose. ■

BY KRIS GLASER

Many of our readers come across fast, easy ways to solve a problem or accomplish a task. Well, we'd like to hear about it! If you have a great tip you'd like to share, email us at readertips@smartcomputing.com. If we print your tip, we'll send you a free *Smart Computing* T-shirt. You'll be the envy of all (well, some) of your friends.

Please include your first name, last name, and address, so that we can give you credit if we print your tip. (And so that we can send your T-shirt to you, of course.) Please limit your tip to 200 words or fewer. Not all tips received will be printed, and tips may be edited for length and clarity.

Short & Simple Tips To Make Things Easier

A Fresh Start For Windows Vista Installs

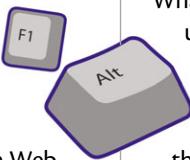
If you try to upgrade from any version of Microsoft Windows XP to any version of Vista and as a result your computer crashes, try wiping your hard drive, reinstalling WinXP, and then upgrading to Vista from that point.



Mike A., Hutto, Texas

Get To Know Your Keyboard

The function keys (F1 through F12) and ESC, ALT, and TAB can perform mouse or repetitive operations quickly. Combining key sequences can keep your hands on the keyboard instead of needing to grab the mouse.



For example, most PC applications use F1 to display the Help menu. Many browsers use F6 to jump to the Address field from a Web page. At the PC Desktop level, CTRL-ESC displays the Start menu; ALT-TAB moves from one open application to another; ALT-F4 closes the current window; and ALT-Spacebar displays a menu to move, resize, or close the current window. Many shortcuts appear on the drop-down menus under File, Edit, and so on for easy reference.

Shar F., Minneapolis, Minn.

Keep It Clean

One day when I was looking to clean the dust off of the quarter-sized air intake on my laptop, I grabbed a Swiffer Dusters. Now it is a routine that I lift my laptop a bit and gently run the duster over the air intake. When I remove cables and my "desktop laptop" becomes a true laptop, I can see that it helps quite a bit in keeping airflow as high as possible.

Frank T., Ossining, N.Y.

Use OE Rules Wisely

I use Outlook Express, which has message rules you can use to sort out unwanted mail. It has several rules, including comparing items in the From field, the Subject line, and the text in the message itself.



The implication is that by using these rules, you can sort out unwanted emails and dump them. It doesn't always work, however, because spammers have figured out ways around certain rules, such as by using pictures as opposed to text.

What I did was to reverse the implication and use only one rule. I compare the From field to people from whom I want to receive email and move those emails to a different folder. I then move what's left in the inbox to the Trash.

Raymond K., Birchwood, Wisc.

Electrical Tape Protects Unused Ports

To help prevent problems from dirty connections, I always cover unused ports on my PC and all of its peripherals with electrical tape. This includes USB ports and miscellaneous inputs and outputs, such as phone, Ethernet, and A/V (audio/video) jacks. I prefer to use red or orange electrical tape, as this makes it easier to spot when probing hard-to-access panels on equipment. Simply cut the tape into small pieces and then apply them over ports that aren't likely to be used—just be careful not to obstruct any vents. The tape is an effective barrier against dust and contaminants that can cause connectivity problems, and it's easy to remove as necessary.



Dennis D., Joplin, Mo.

DIY Project

Back Up & Move Your iTunes Library

Inevitably, we all need to upgrade to a new PC or laptop more than a few times in our lives. If you use iTunes, this switch can seem like an obstacle if you want to transfer your entire library from an old PC to a new one. Don't be dismayed—Apple has included two methods for backup and transfer for iTunes 7: using your iPod as a portable hard drive or backing up your entire library on a CD or DVD archive. We'll walk you through both options, so you can pack up and move all of your iTunes media without breaking a sweat.

Method 1: Use Your iPod

iPod owners have the ability to move all their music from an old PC to a new one, simply by using their iPod. This is an appropriate option for anyone who does not have a CD or DVD burner installed in his computer—we'll provide instructions for copying a CD/DVD archive option later in this article.

Enable disk use. The first step in the iPod transfer involves configuring your iPod to enable disk use and switching it to manual update. Your iPod essentially functions as an external hard drive that can transport media from one location to another, so you'll need to make sure you can manually manage your iPod's drive space for the transfer. First, open iTunes on your original computer. Using your iPod USB cable, connect your iPod and wait a few moments until iTunes recognizes the device. Next, access your iPod preferences by clicking your iPod in



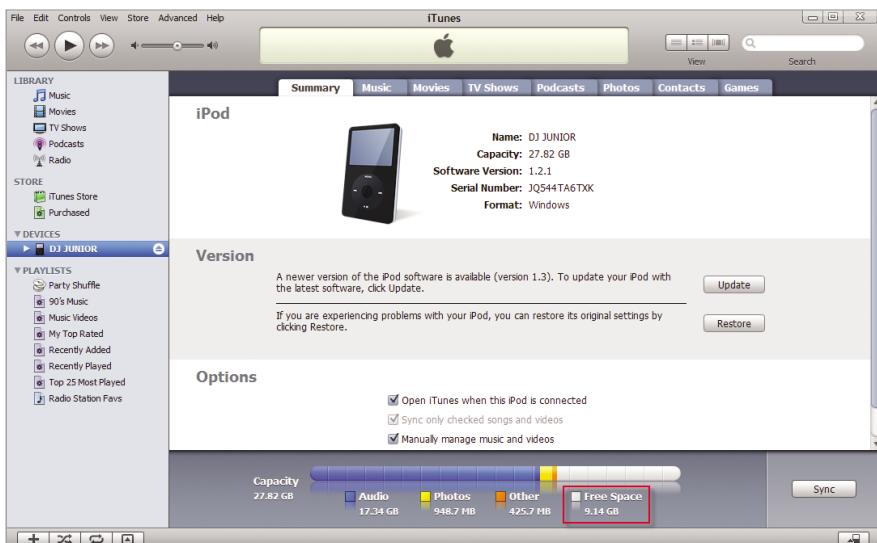
the Source pane in the Devices section. Choose the Summary tab in the main library window and click Manually Manage Music (And Videos). Both the Manually Manage Music (And Videos) and Enable Disk Use checkboxes should now be selected. This will disable automatic updating, but you can switch your iPod back to automatic update at a later time.

Next, a window will open displaying the following message: "Disabling Automatic Update Requires Manually Unmounting The iPod Before Each Disconnect." Click OK and then click the Apply button in the iPod preferences section in the main iTunes window.

Enabling disk use for an iPod shuffle is slightly different: First select the Enable Disk Use checkbox. Next, move the Storage Allocation slider to choose the amount of space you want to allow for songs vs. data. Now, locate and open the iPod icon in Computer. From here, you'll drag your files to or from the iPod window to make a copy of them.

Consolidate your music. To make the move easier, it's a wise idea to merge all your media prior to the move. To do this in iTunes, click the Edit menu and select Preferences. Next, choose the Advanced tab and click General. Make sure the Copy Files To iTunes Music Folder When Adding To Library checkbox is selected. Click OK. Next, select the Advanced menu and click Consolidate Library. iTunes will tell you that "Consolidating Your Library Will Copy All Of Your Music Into The iTunes Music Folder. This Cannot Be Undone." You can now click Consolidate.

Optimize iPod space. In order to move your music using your iPod, you must determine how much is stored in your library compared to the amount of free space available on the device. Choose Music in the Source pane and then look at the bottom of the main iTunes window; you should see the number of items, total time, and gigabytes stored in your library. When you select your iPod, the amount of free space is displayed at the bottom of the



In the iTunes Summary tab, you'll see how much free space is left on your iPod. You may need to open up more than half of your iPod's capacity to successfully move your music.

Summary tab. The remaining space will determine whether you need to free up more room on your iPod or proceed to copying your iTunes folder to the iPod.

If your library exceeds the free space on your iPod, you'll need to remove some items from iTunes. Start by clicking the gray arrow next to your iPod and select Music in the Source pane (while your iPod is still connected). Select any song from your library. Click the Edit menu and click Select All; next, press the DELETE button. It might seem incorrect to delete all the music from your iPod. Don't worry—if you regularly use the automatic update feature previously mentioned, your music is still on your PC's hard drive. However, you'll be deleting your music if you haven't been using the auto update feature or if you've been uploading music from a source other than iTunes that doesn't use automatic update. When you press the DELETE button, iTunes asks if you really want to delete the items. Click Yes.

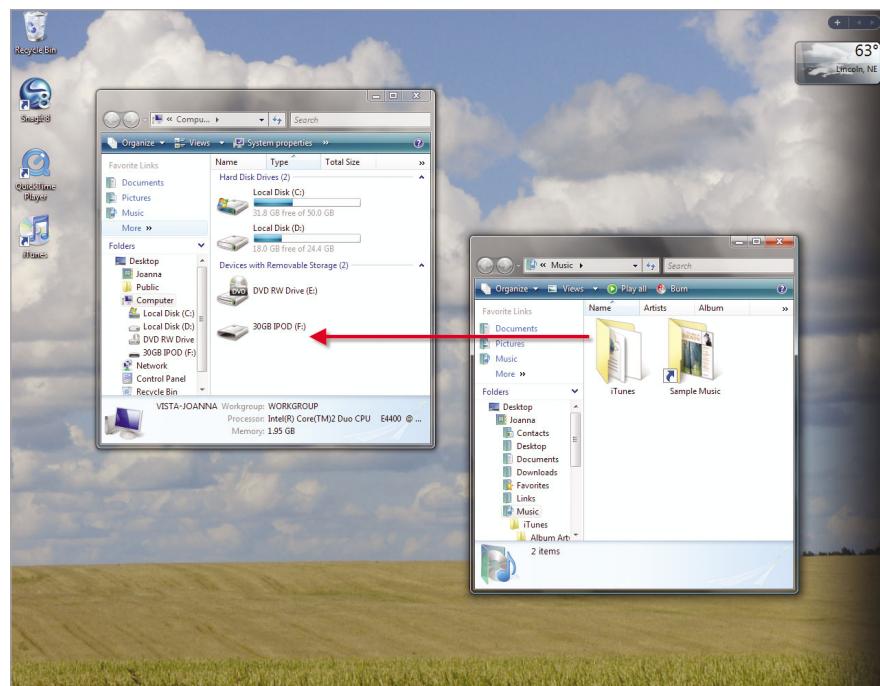
Copy your library to your iPod. To copy your library file to your iPod, first close out of iTunes. Next, find your iTunes folder, as well as your

iPod. In Windows Vista, go to Start and then select Music to access your iTunes folder. The next step is to locate your iPod by clicking Start and Computer; your iPod should appear under Devices With Removable Storage. With both windows open, click and drag your iTunes folder to

the iPod icon. This procedure could take some time if you own a large library. Once the copy process is completed, reopen iTunes. Next, select your iPod in the Source pane and click the Eject button located at the bottom-right corner of iTunes. Disconnect your iPod when the Do Not Disconnect message disappears on your iPod's screen (if using an iPod shuffle, the status light will blink until you manually eject it).

Back up existing media. You'll want to make sure that any music you're already storing on your new computer is saved. In iTunes, go to the Edit menu and select Preferences. Choose the Advanced tab and click the Reset button. Make sure the Copy Files To iTunes Music Folder When Adding To Library checkbox is still selected; to finish, click OK. Now, select the Advanced menu in iTunes and click Consolidate Library. Note the alert message and click Consolidate to complete the steps.

Copy iTunes folder to the new PC. To create a copy of your media files on your new PC, open Music via the



Moving your iTunes Library to your iPod is a simple process: Drag your iTunes folder from the Music window to your iPod.

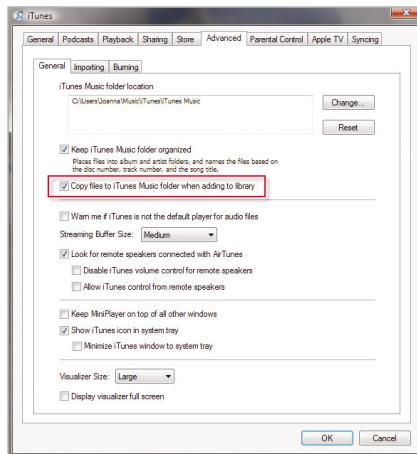
Start menu. Drag your iTunes folder to your Desktop. Once again, you'll access your iPod by opening Computer through the Start menu. Drag the iPod icon in Computer to the Music folder on your new PC. Depending on how much media you're moving, this transfer could be lengthy. Once the move is complete, all your music, playlists, and various media are available for use, just as they were on your previous computer.

After you've moved your media to the new computer, make sure you can incorporate your existing music into your recently moved music. Click the File menu and select Add Folder To Library; the Browse For Folder window will appear. Locate the iTunes folder under Music and click OK to add music that's currently stored on your PC.

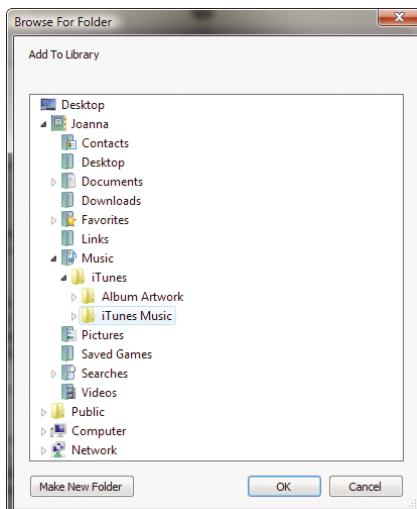
If you'd like iTunes to update your iPod automatically on your new PC, you'll need to reactivate the Sync option for your iPod. When your iPod is connected to your computer, click the Music tab in the main iTunes window. Click the Sync Music checkbox and then select All Songs And Playlists. An alert message will ask if you are certain you want to enable automatic updating. Select Apply to implement these changes.

Method 2: Utilize Backup Discs

The other method for archiving your library of music, video, and media involves backing up your content to CD or DVD. iTunes includes a Back Up To Disc feature that lets you save your media and transfer it to your new PC using a blank CD-R/RW (CD-recordable/rewriteable) or DVD-R/RW (DVD-recordable/rewriteable). Before you can begin this process, you'll need to make sure that your new PC includes a compatible CD or DVD burner. You can check the compatibility of your optical drive by clicking the Edit menu and selecting Preferences. Next, click the Advanced tab and select the



To back up existing media on your new PC, click the checkbox next to Copy Files To iTunes Music Folder When Adding To Library in the Advanced tab in iTunes preferences.



If you want to integrate the music currently stored on your new PC, select Add Folder To Library and locate the iTunes folder.



The welcome window for archiving your library on CD or DVD gives you two transfer choices: Back Up Entire iTunes Library And Playlists or Back Up Only iTunes Store Purchases.

Burning tab. If you see the drive listed next to CD Burner, then the drive is compatible.

Create a backup disc. To make a backup disc, go to the File menu in iTunes and click Back Up To Disc. In the iTunes Backup dialog box, you have two backup options to select from: Back Up Entire iTunes Library And Playlists or Back Up Only iTunes Store Purchases. If you want to perform an incremental backup, click the optional checkbox that says Only Back Up Items Added Or Changed Since Last Backup. Next, click Back Up. Place a blank CD or DVD in your PC's optical drive when prompted. iTunes will display a series of notifications to inform you of each stage.

iTunes will only burn enough items to fit on a single disc. So, if you're storing an extensive media library on your PC, you'll more than likely need to use multiple discs. For instance, our 19GB collection of multimedia required 23 CDs, but these numbers will vary depending on the storage capacity of the discs you use. When the dialog box appears and asks if you'd like to back up to multiple discs, click Data Disc.

Restore your library. As you insert your backup CD or DVD into your new PC's optical drive, the message Would You Like To Restore From This Backup Disc? appears; click Restore. Be sure not to eject a disc when backup is in progress. When all songs on the disc are imported, iTunes Restore will tell you to insert the next backup disc; do so and then click OK. You should recognize your copied items in their appropriate sections, such as Music, TV Shows, or Podcasts. If you'd like to view individual albums and songs as files prior to disc restoration, open Computer and click your optical drive. The contents of your backup disc will be listed in alphabetical order. ■

BY JOANNA SAFFORD

CrossOver To The Good Life

With the tech journalism business get bombarded every day by new products, and although we love getting our hands on exciting new technology before the general public gets to see it, over time we become a bit numb to all the flash. It's rare that we get something and find ourselves saying, "This is so cool."

Yet that's precisely what I said when I first read about CrossOver Mac from CodeWeavers (www.codeweavers.com). I'm telling you, this program is cool.

Basically, CrossOver is a product that enables you to run Windows programs on your Mac. It's partially the fruit of the Wine project (pun intended), an open-source project 15 years in the making that does the same thing for Linux, FreeBSD, and Solaris users that CrossOver does for Mac users.

Option 3

For some time now, Mac users have been able to use emulation software or Mac/Windows dual-boot offerings such as Bootcamp from Apple to use Windows apps. While these options have benefits, they each have a major flaw. Running an emulator is akin to having two operating systems open and can create a performance bottleneck. And as useful as it is to be able to boot into either Windows or Mac on one computer, it can be tedious to constantly switch between them.

But there's a third, increasingly viable, option in CrossOver, which leverages Windows 32 APIs (application programming interfaces) to enable Windows applications to run natively on Macs. APIs are code that Windows apps need to



Product Info
CrossOver Mac
 Prices starting at \$39.95
CodeWeavers
 (651) 523-9300
www.codeweavers.com

run properly. In essence, the app thinks it's in a Windows environment.

Granted, CrossOver Mac has been around awhile, but it's only been out of beta for about a year and a half. Each release (including version 7.0) adds improvements and supports more apps. 7.0 includes greater support for Microsoft Office applications, Quicken, and Internet Explorer. It also runs faster than previous iterations.

You can download a free, 30-day trial from tinyurl.com/3j2dja. If you like it, you'll need to pay \$39.95 for the Standard version or \$69.95 for the Professional version. In any case, the software is easy to install and use.

Bottles

The Bottle function, which is one of the more impressive features of CrossOver, lets you create a virtual Windows environment, complete with a C: drive and the subfolders you'd normally find in Windows. You can maintain multiple Bottles at once, freely alter them, and easily archive them.

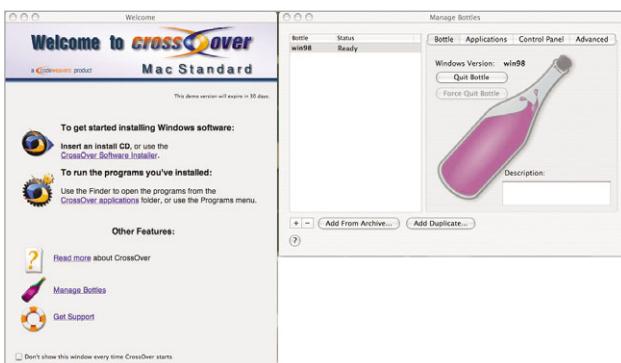
So, you can effectively have multiple Windows installations on your Mac, each a different version. For example, you can have a Bottle each for Windows 98, Windows 2000, and Windows XP from which you can run programs that are only compatible with certain distributions. If an application doesn't run on a Windows OS (operating system) later than Windows 98, you just run it from the Windows 98 Bottle.

The Catch

OK, so it's not perfect—there are a few major issues to consider. The biggest one is that only certain Windows applications are supported. And of those, many of them, such as Microsoft Office programs, already have fully supported versions for Mac anyway. As my social scientist wife pointed out, "Neat program. Call me when it runs Mplus [a Windows-only statistical modeling program]." Touché.

More supported apps are sure to come as fast as programmers' fingers can fly, but they have a long way to go. Furthermore, the applications that are supported tend to be a bit older—Internet Explorer 6 is the most recent supported version of IE, for example. Also, CrossOver only works on Intel-based Macs; condolences to G3, G4, and G5 users.

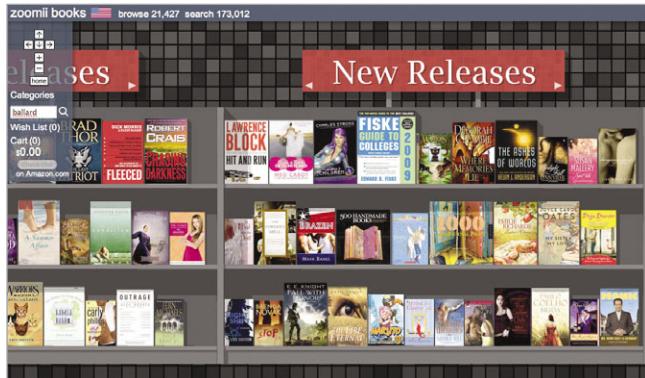
Still, this is an exciting development for Mac users and will inevitably (if eventually) make our lives easier. ■



CrossOver Mac is a third option for running Windows applications on a Mac.

WEB TIPS

Enhance Your Time Online



Who says you can't judge a book by its cover? Bring more of the bookstore experience online.

Real-World Book Browsing

Problem: I love shopping online, but it's not the same experience as walking through a real bookstore. **Solution:** Of course a simple solution would be to go to a real brick-and-mortar bookstore, but that wouldn't be much of a Web Tip. Instead, take a trip to virtual stacks at Zoomii Books (zoomii.com). Essentially a pretty front-end interface to Amazon's book database, Zoomii displays covers, scaled to size, of the top-ranked 25,000 books on virtual bookshelves. It is super slick and provides a real browsing experience. Yes, you can still search by keyword—in fact, searching brings up a custom bookshelf of the titles that meet your criteria, so you can still see the books sized in relation to each other. Currently, Zoomii is only available for the U.S. and Canadian Amazon stores.

Classical Music Set Free

Problem: Music in the public domain doesn't seem very public. Even if the songs are supposed to be open and free, most of the recordings are protected by their own copyright. What out there is really free? **Solution:** You have to hand it to the folks behind Musopen (www.musopen.com), an online music library of copyright-free music. They have gone out and found musicians willing to record public domain classical music and release it without additional copyrights. What does this mean? For content producers, it means you can use these recordings in a commercial, in a film, on a Web site . . . all without obtaining any additional rights or paying any fees. For the rest of us, it means being able to download a ton of classical music (such as the complete Beethoven Sonatas) free.

Sure, if you're a real aficionado, you probably want a specific recording by a renowned conductor or a world-class performer. However, you can't beat Musopen for access to the music itself.

Online Annotations

Problem: I'm collaborating with a co-worker on a document, and I'm looking for a new way to work together that doesn't involve sending the same document back and forth. **Solution:** Microsoft Office products have collaboration features built-in, but shuffling a document back and forth can be a hassle. You might want to check out A.nnote (a-nnote.com), which offers a free service to upload and mark up

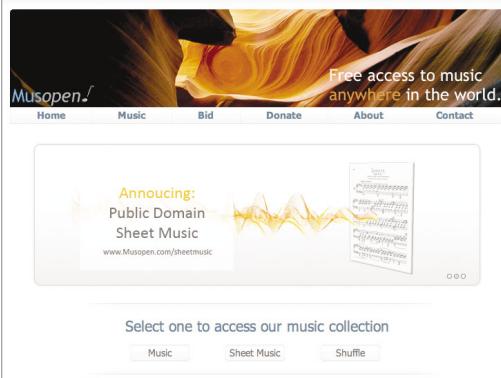
Gift Idea Generator

Problem: It's a friend's birthday, and I don't know what to get her.

Solution: When it comes to gifts, sometimes all you need is an idea. GiftGen (www.giftgen.co.uk) is a UK-based shopping service that might help. Enter the amount you want to spend and the recipient's age, interests, and gender, and you get a list of items with links to online stores. Two notes: First, the amounts at the beginning are listed as British pounds, so remember it's about 2 dollars to the pound. Second, the site suggests stores abroad, but it's easy enough to find the equivalent stateside store to pick up something similar.

Find A Lost Manual

Problem: I bought a used appliance, and it didn't come with the original manual.



Musopen offers free recordings of classical music to the public.

documents including Word docs, PDFs, and even Web pages. Registration does not require a credit card, but be aware that the free version only allows a certain number of annotations. (See the price list at a-nnote.com/pricing.html.)

Solution: If you can find the brand name and product model, chances are you can find your manual at SafeManuals (safe-manuals.com). There's no guarantee your manual will be available, but with over 883,000 documents, you have a pretty good shot. ■

Reveal Your Inner Geek

ThinkGeek

www.thinkgeek.com

ThinkGeek is the ultimate toy store: It's chock-full of gadgets, widgets, and thingamajigs. It's nearly impossible to visit the site without finding something you love. You can find T-shirts and other apparel, toys, books, games, caffeine products, USB gadgets, and other electronics. Products range from practical to humorous. Take, for instance, the useful Staple Free Stapler or the USB FlexLight. Then there's the humorous USB Rocket Launcher and the Giant Plush Microbes. Visit ThinkGeek to buy gifts for yourself or a special geek in your life.

BrainPOP

www.brainpop.com

Being around you their whole lives has made your kids and grandkids become minigeeks, always hungry for knowledge about science and technology. You've searched the Internet for kid-friendly sites that teach in a fun way, but you may not have found anything that sticks. BrainPOP is an educational Web site that features movies and interactive content for all ages. With the free trial, you can view videos about subjects ranging from technology and computers to English and social studies. The videos are colorful, age-appropriate, and just plain fun to watch. In order to have full access to BrainPOP content, however, you must subscribe. Subscription prices range from \$7.25 per month to \$150 per year for home use, and you can choose from a variety of BrainPOP packages.

Classic Games Arcade

www.classicgamesarcade.com

Do you ever get the itch to play your favorite classic arcade games? Of course



you do. We bet you spent hours in arcades when you were younger. These days, it's hard to find time to visit an arcade, and they can get expensive. Instead, hop over to Classic Games Arcade and browse the list of Flash-based arcade remakes. There's plenty to choose from, including Tetris, Pac-Man, Frogger, Moon Patrol and other favorites, such as Street Fighter, Sonic the Hedgehog, and Zelda. You can play all the games free, right on the site.

Geek Test

www.g33kttest.com

You've been called a geek more than once, but you still can't quite figure out what makes you a geek. To help you discover what makes you geeky and what type of geek you are, take the University of Advancing Technology's Geek Test and be proud of your results. The test is made up of 20 multiple-choice questions that present several scenarios. For example, one question asks, "You still believe in," and offers the choices, "unicorns and dragons," "the Force," "vampires," "aliens/life out there," or "none of the above."

Geek Parenting

www.geekparenting.com

The best way to describe Geek Parenting is in the words of the blog's

creator, Amy Cottrell, who describes her site as "a blog for pop culture junkies who have spawned, yet refuse to give up their geeky obsessions." Cottrell's blog is full of thoughtful posts from the perspective of a geek mom. She comments on a number of humorous subjects and relates to readers with real-life topics to which even childless geeks can appreciate. The site is simply fun and easy to read, which explains why it has won several blog awards.

Blogger

www.blogger.com

If you don't have one already, you've probably heard of blogging and have a general idea of what a blog is. Blogger has enabled geeks (and others) to create their own Web-based journals to share with the world. It's easy to do, and you can create a blog site for any topic you want, such as your comic book obsession or your thoughts about the newest sci-fi movies. You can design your blog so that your friends and family can read your posts and leave comments, view your pictures and videos, and, of course, call you a geek.

TigerDirect.com

www.tigerdirect.com

Geeks know where to go when they need components or accessories for their computers. One great site is TigerDirect.com, which has everything you need to build a computer from scratch or buy a prebuilt system. You can also browse consumer electronics and watch tutorial videos that show you how to perform various tasks. One of the best things about TigerDirect.com is its discounted prices.

That's News To You

Finding the appropriate online group to match your interests can be a monumental task. So each month, we scour the Internet to bring you the friendliest forums and most interesting bloggers the Web has to offer. This month, we share the musical talents of one of our heroes, Jonathan Coulton.

Jonathan Coulton

www.jonathancoulton.com

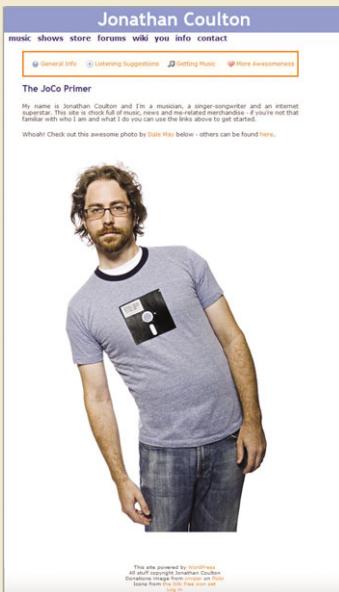
Jonathan Coulton used to write software, but now he's a successful musician who draws much of his inspiration from his geeky lifestyle. His blog explains how he's written over 100 songs about every topic imaginable, from robots, zombies, and monkeys to laptops, Pluto, and Ikea.

JoCo, as he has been affectionately nicknamed, quit his job in 2005 to pursue a music project called "Thing A Week," in which he wrote one song each week for a year.

His popularity grew with his clever and humorous lyrics, and now he can confidently call himself an "Internet superstar."

Aside from his musical talent and gift for writing geeky lyrics, JoCo has also become popular because he gives his music away free, having licensed all his songs under Creative Commons, a nonprofit organization that works to make creative media available to the public to use for their own projects.

If you visit JoCo's blog, you can expect to find all of his songs, complete with links to lyrics; general information; guitar tabs; and fan-made remixes, videos, and artwork. You can also delve into JoCo's biography, blog updates, show information, forum, and merchandise. As Coulton admits on his site, all this can be overwhelming, so we recommend heading to the Music section and geeking-out to "Code Monkey," "Skull-crusher Mountain" and "Re Your Brains."



Share The Wares

Some of the best apples in the online orchard are the free (or free to try) programs available for download. Each month, we feature highlights from our pickings. This month, we introduce you to two easy template-based Web site builders that will help you proclaim your geekdom to the world.

Freewebs

www.freewebs.com

Have you ever wanted a place where you could express your enthusiasm for your favorite fantasy novel or write about your cat's latest antics? With Freewebs, you can create an entire Web site within minutes. Choose from over 300 templates or start from scratch. Freewebs lets you create numerous pages, such as a photo gallery, blog, and guestbook, and you can add media to your site, such as pictures, videos, and links. The simple page editor and file manager make arranging your site quick and easy.

To share your geeky side with the world, go to Freewebs and create an account. Within minutes, you will be blogging and adding pictures and videos of your favorite geek activity. And the best part—it's all free!

WordPress.com

www.wordpress.com

There are several free Web site builders floating around the Internet, but WordPress.com offers a straightforward approach and polished results. This free blogging site gives you all the tools you need to easily create a professional-looking blog for any purpose.

Once you sign up with WordPress.com, you'll be able to create pages for your blog, add widgets, and invite others to become authors on your blog.

WordPress.com is template-based, which makes creating your site as easy as choosing your favorite layout. You can customize templates by adding your own picture to the page header or by editing the CSS (Cascading Style Sheets) code. Soon, you'll be just as geeky about blogging as you are about old sci-fi movies.



The sensation of turning a page in a good book is something no audio book can duplicate. Conversely, transferring a book from *The New York Times* Best Seller list to an iPod to listen to from anywhere is a feat a print book can't match. Audio books may never completely push print books to the back shelf, but there's no denying the increasing popularity audio books are now experiencing among buyers. Audio books that are downloadable as a digital file in particular are picking up steam due to the immediacy of obtaining the files and the ease of toting multiple books around in a DAP (digital audio player), PDA (personal digital assistant), cell phone, or other portable device.

Based on a 2007 survey of audio book publishers, the Audio Publishers Association estimated the 2007 audio book market at \$923 million, up 6% from 2006. Although downloadable audio books represented only 14% in 2006, that's up from just 6% in 2004. The following explores why audio book popularity is growing, what this means to buyers, and where you can pick up free and paid audio book downloads.

To DRM Or Not To DRM?

If audio book downloads continue to pick up pace as many industry experts predict, September 2007 may have been the movement's turning point. That's when online music retailer eMusic (www.emusic.com) launched its audio

The Growth Of Digital Audio Books

Downloading A Good Book Is Easier Than Ever

book catalog (about 2,000 titles) as downloadable, unprotected MP3 files, making the audio books compatible with any device supporting MP3s. Conversely, some retailers previously sold and continue to sell audio book downloads with DRM (digital rights management) protection in place to govern the use of downloads. Unfortunately, this has meant not every device supports every type of download. iPods, for example, don't support audio book downloads sold as protected WMA (Windows Media Audio) files.

Similar to how the major music labels are now selling their audio as DRM-free MP3 files, many major book publishers and authors are pushing for DRM-free audio books. Following eMusic's move, Random House Audio began experimenting with offering DRM-free audio books, for example, and now plans to sell primarily DRM-free titles, reserving exceptions to retailers and authors who want DRM in place. Reportedly, Random House discovered only its DRM-protected books were being pirated and not DRM-free titles.

Public libraries are also shifting to offering DRM-free audio book downloads via the MP3 Audiobook format from OverDrive (www.overdrive.com), which provides download services to libraries, schools, and retailers. MP3 Audiobook works with iPods and devices from Creative, Sony, Samsung, SanDisk, and others. In June, OverDrive

announced the District of Columbia Public Library as the first U.S. public library to offer audio books as MP3 downloads. OverDrive's audio book catalog now has about 3,000 DRM-free audio books, plus 20,000 DRM-protected audio books and 80,000 ebooks. By year's end, OverDrive estimates hundreds of libraries will offer audio book MP3 downloads.

Using MP3 Audiobook does carry certain usage terms and restrictions, and users must install the free OverDrive Media Console 3.0 (overdrive.com/software/omc) to manage downloads and transfers. Media Console also has a Burn Wizard that helps create audio CDs from downloads. Once an audio book's due date expires, Media

A screenshot of the Audible.com website. The top navigation bar includes links for Member Login, Gift Certificates, Buy & Redeem Gifts, Device Center, and Help. A "Cart" link is shown with a note that it is currently empty. The main content area features a "SPECIAL OFFER" for "Download & Listen to a Bestseller for only \$7.49". Below this, there's a section for "Best-Selling Audiobooks" with several book covers and "Listen" buttons. The sidebar on the left contains links for "SEARCH PRODUCTS BY: Keyword" and "Advanced Search", as well as categories like Audiobooks, Business, Classics, Education, erotica & Sexuality, Fiction, History, Kids & Young Adults, Mystery & Thrillers, Romance, Sci-Fi & Fantasy, Self-Development, and More & Categories. Other sections include "Audible Entertainment", "Audible Originals", and "Special Features".

Audible.com is the leading online provider of downloadable spoken-word content.

Console will disable access to the download and prompt the user to delete the unusable related files and audio book copies.

Another factor that could greatly influence the growth of audio book downloads and the use of DRM is Amazon.com's \$300 million cash purchase early this year of Audible (www.audible.com), the leading seller of downloadable audio content. Audible has supplied iTunes with its audio book catalog since 2003. iTunes is a primary competitor to Amazon.com's own digital download business, including the Amazon MP3 download store that sells DRM-free audio as MP3 files. Audible, which is now a wholly owned subsidiary of Amazon.com but individual operator, has historically applied proprietary DRM protection to its downloads.

At press time, Amazon.com wasn't selling Audible books via its MP3 download store. Upon purchasing Audible, an Amazon.com spokesman stated that Amazon.com didn't plan to remove Audible's DRM use unless customers started to complain, which one site (Audible Stop The DRM; www.callanaudible.org) has popped up to do.

Download, Transfer & Listen

Whether you download audio books with or without DRM protection, there are plenty of free and paid options. Here's a list of popular audio book sites.

Audible. Audible offers 40,000-plus spoken-word downloads, including books, newspapers, magazines, TV shows, podcasts, radio, and original programming. You can stream audio from the site, burn downloads to CD, and manage downloads and transfers from iTunes. Audible also supports hundreds of non-iPod devices. Audible's Device Center lists compatible devices that support Audible. You can buy downloads a la carte or via monthly and annual membership plans that add some extras. Audible Listener Gold, for example, starts at \$14.95 per month or \$149.50 annually, giving you

one book credit per month or 12 credits at once for an annual membership (credits roll over), 30% off all purchases, free weekly audio selections, access to member-only sales, and a daily audio copy of *The Wall Street Journal* or *The New York Times*.

Borders.com. Border's audio book downloads number more than 15,000 selections in 16 categories. Downloads sell as MP3 and protected WMA files, and the site appreciatively displays icons with each audio book to indicate the file format it's available in. Additionally, Borders has an intuitive Compatible Devices section that graphically displays supported devices and the formats each supports. Downloads start at under \$10, though most cost \$15 to \$20.

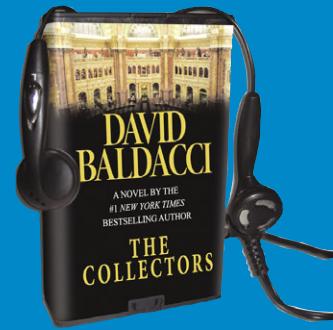
efollett.com. If you prefer audio books that lean toward the scholastic side, efollett.com has plenty to offer. You'll find the selections within the site's ebook section. Downloadable audio books only sell as DRM-protected WMA files, although you can burn downloads to CDs and transfer audio books to portable devices that support protected WMAs. Most selections cost \$9.95 to \$25.

Jiggerbug.com. Jiggerbug offers a monthly audio book download plan, though downloads expire after 14 days and compatibility is limited to DRM-protected WMAs. Additionally, you can't burn downloads to CD, but you can transfer downloads to a portable device. Plans start at \$13.95 per month for one download every two weeks or \$24.95 per month for two downloads every two weeks. Six-month and annual prepaid plans are also available starting at an average of \$11.95 per month (one download every two weeks) and \$21.95 per month (two downloads every two weeks).

Simply Audiobooks. In addition to an Unlimited Rental Club similar to Netflix's movie rental service, Simply Audiobooks also has a Monthly Download Club starting at \$14.95 a month. You can also opt for an \$11.95 per month prepaid annual membership that entitles you to one monthly

The Playaway Way

If you'd rather skip audio book downloads and transfers altogether, Playaway (store.playawaydigital.com) offers an alternative. The self-contained Playaway devices integrate an audio book directly into a portable player that includes a headphone jack and player controls. Most books start at \$29.99, and a RePlay Rewards program offers book recycling options.



Playaway's all-in-one audio book approach eliminates the need for downloads.

download from the 8,000-plus catalog. Other download memberships allow for two (\$21.95 per month/\$19.95 per month annual prepaid membership) and three (\$27.95/\$26.95) downloads per month. Downloads are available in WMA and MP3 formats, and you can burn audio books to CD.

Free options. Among free audio book download sources is Project Gutenberg (www.gutenberg.org), which carries an extensive catalog of human-read and computer-generated audio books in dozens of languages. Other choices include AudioBooks-ForFree.com; LibriVox (www.librivox.org), which offers MP3 and Ogg downloads as read by volunteers in the public domain; Dublit (www.dublit.com), an online community of professional and amateur writers; and The Internet Archive (www.archive.org/details/audio_books_poetry), which has free book and poetry recordings in MP3 files. ■

BY BLAINE FLAMIG

The “G.E.” Standard

No, not *that* G.E. The G.E. Standard I'm referring to is Mr. Modem's former Standard of Excellence which I have recast as my Good Enough standard. The theory underlying this quasi-brilliant thesis is that when a computer is running well and you're able to perform most of the tasks you need to perform, that's good enough. Don't tweak, don't poke, don't putter, don't fine-tune. The more tweaking you do, the greater the probability that you will end up articulating the oft-repeated first chorus of the “Tweaker's Lament,” “Why didn't I leave well enough alone? Doo-dah, doo-dah.” So the next time you feel compelled to sneak a tweak, deploy my G.E. Standard and ask yourself, “Is the status quo good enough?” If so, go for a walk, work in the garden, or think tranquil thoughts until the feeling passes. Since 60 is the new 50, it seems only appropriate that Good Enough is the new Excellent.

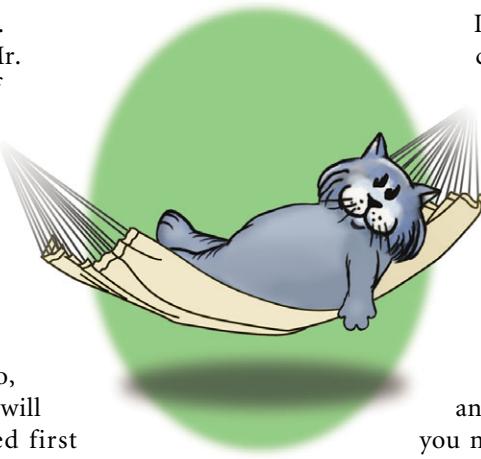
Tiny fonts on printed Web pages won't perturb your peepers if you start livin' large and printin' larger. The process is virtually identical for most browsers: With a Web page displayed on-screen, click File and Print Preview. In the Scale field, change the percentage to 125 for starters and then increase it until you no longer feel like you're reading the smallest line on the eye chart in your ophthalmologist's office. (In IE7, press ALT-W to see the page in Full Width view and press ALT-1 to return to Full Page view.)

Looking for a fast and easy way to stash a top-secret file for safe-keeping? Create a free Gmail (www.gmail.com) email account and then send the file to yourself as an attachment. Only you will know the account exists and if you won't tell, I won't either.

We all need help with software at one time or another, so the next time you need assistance with any Windows application, press the F1 key. Seriously. That's all there is to it.

Firefox 3 (www.mozilla.com/firefox) is on the loose and looking mighty spiffy. A few of my favorite features include the integrated History and Bookmarks Manager called Library. Use it to search your browsing history and bookmarks, combine search terms (multiword searches are supported), and save any search for future use. You can also search tags.

Tagging allows you to add your own keywords to bookmarks which you can later use to search for saved sites. Double-click the star icon located to the right of the Address bar. Use the dialog box to save the current page, rename it, specify a folder, and add your own tags.



In the Address bar, the scope of the auto-complete list that appears when you begin entering characters has been expanded to include Web addresses, bookmarks, history, page titles, and tags. Matches are shown on two lines, with different colors for page titles and URLs.

Other new features include the ability to designate Yahoo! Mail or Gmail as your default app for `mailto:` links, the ability to pause downloads and resume them in a later session, and you now have the option of saving the currently open tab set before shutting down. Love it!

Social networks, also known as profile sites, invite you to create a profile that can include your photo, background information, hobbies, thoughts, feelings, and opinions. Other perv—other people who share your interests can then meet you and, in theory, the world becomes a cozier place where everyone sings “Kumbaya” and engages in spontaneous-yet-consensual group hugs. You don't have to reveal anything about yourself if you don't want to, but it appears to me that most people feel compelled to share more personal information than anyone could possibly be interested in. Personally, I'd rather have a root canal.

Sites like Bebo (www.bebo.com), Friendster (www.friendster.com), MySpace (www.myspace.com), and Facebook (www.facebook.com) are but a few of the scores of social networking sites just dying to meet you.

A word of caution: If you decide to participate, keep in mind that anything you place on the Web will be there forever—possibly longer—so think twice before you upload those racy photos from your 1968 lost weekend in Juarez. They may come back to haunt you in the form of, “Grandpa, look what I found on the Internet. Is that you? What happened to your ponytail? Hey, that doesn't look like Grandma!”

Coming next month: October is harvest time, so I'll be gathering up all the scraps of paper, yellow stickies, and cocktail napkins with scrawled computer tips I've collected throughout the year and sharing the best of them with you next month. It's shaping up to be a bountiful harvest. ■

BY MR. MODEM

Mr. Modem (Richard Sherman) is an author, syndicated columnist, radio host, and publisher. “Mr. Modem's Weekly Newsletter” provides personal responses to subscribers' computer and Internet questions, plus weekly computing tips, Web site recommendations, virus alerts, hoax warnings, and more. For additional information, visit www.MrModem.com.

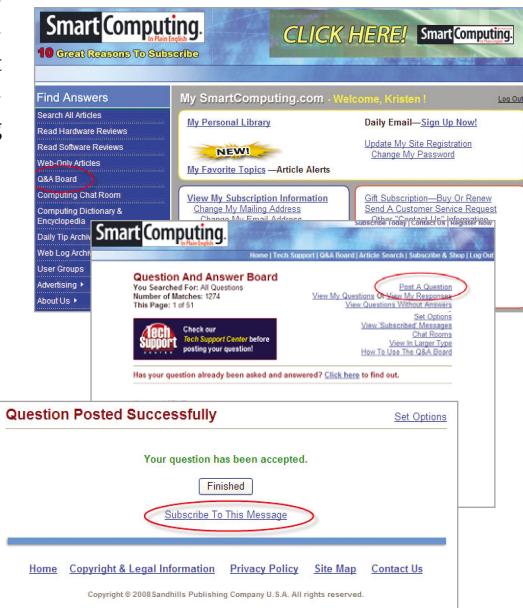
Q&A Board

Computers are great when they're running properly. But when you have a computing problem, finding answers can be frustrating. So if you're having trouble with Windows XP or can't find a solution to a computing question or problem, consult the *Smart Computing* Q&A Board. This subscriber-only feature is a great resource for getting quick and helpful responses to your computing problems.

Before posting a question on the Q&A Board, be sure to check out the Tech Support Center and all of its extensive resources, including an error message search, solutions knowledgebase, and troubleshooting articles.

It may also be helpful to utilize the Q&A Board search at the bottom of the page, because, most likely, someone has had the same tech woes that you are experiencing. You can search by message number or keyword ("Windows XP," for example) and sort your results by relevance or a specific date range to make finding answers quick and easy.

1. Log on to SmartComputing.com and click the Q&A Board link.
2. To ask your question, click the Post A Question link in the upper right of the page. (Make sure you are logged in to the site.)
3. Use the Subscribe To This Message link at the bottom of the question to be notified via email when answers are posted.



Smart Computing Fun Site Of The Day (March 25, 2008)

Original

Ferry Halim's flash-based games and animations have a unique design flavor uncommon among the myriad of flash-based gaming sites. From the main page of Orisinal, you'll find more than 50 games, represented by a bouncing thumbnail. Click one for side-scrolling games, puzzle games, and other random game types. You'll never know what type of game it is until you click the thumbnail and read the instructions. Each game has a scoreboard that lets you post your best scores alongside the best scores of other Internet wanderers like yourself.

www.ferryhalim.com/orisinal



Search Engine King

Ten years ago this month, partners founded search engine giant Google. Today it owns sites ranging from YouTube to Google Earth and reigns supreme as the most-used search engine on the Web.



FAQs

**Q.
&A:** New to the Q&A Board? Visit our FAQ section to get the scoop on posting questions. Just click the FAQ link in the Q&A/Computing Chat Rooms section on our home page.

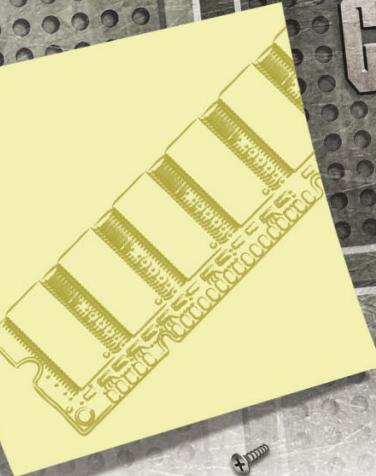
Error Messages

If you're having trouble deciphering that jumble of letters and numbers in an error message, head over to the *Smart Computing* Tech Support Center. Scroll down to the Error Messages section to start searching or browsing for your error.



REPAIR YOUR NOTEBOOK

GIVE YOUR LAPTOP'S COMPONENTS NEW LIFE



Want to know the secret to keeping your notebook safe and sound? Simple: Never take it out of the box. Yes, this is impractical advice, for sure, but each time you pop open your notebook's lid or even pick up the system, you're making it susceptible to unforgiving drops, bangs, bumps, scratches, and collisions. Even something as innocent as bumping your laptop off the edge of a coffee table can result in a malfunctioning motherboard, hard drive, or monitor.

Although there's arguably never been a better time to own a notebook mobility-wise, laptops are far more vulnerable to damage than desktop PCs. Additionally, notebooks historically have a reputation for breaking down sooner than desktops. Unless you own a "rugged" notebook—such as Panasonic's new Toughbook CF-U1

(\$2,499; www.panasonic.com), which

is specifically constructed of magnesium alloy to take a physical beating, including the ability to withstand drops from up to 4 feet—the daily hazards you expose your notebook to will likely catch up eventually.

Last year, for example, *Consumer Reports* reported its subscribers cited 43% of notebooks three to four years old had needed repairing, with the repairs typically running \$100 to \$400. Damage, however, often happens when notebooks are no longer under standard or extended warranties. Additionally, many warranties, extended or not, don't cover repairs related to drops—perhaps a notebook's worst enemy, as a nasty fall can put any notebook component at risk of damage.

Although some notebook repairs are better left to professionals, some repairs and part replacements are within a typical user's skill set. The following articles detail common repair/replacement

scenarios notebook owners encounter. We've also provided solutions for remedying such scenarios, including repairing/replacing a notebook screen ("From Broken To Beautiful"; page 50), keyboard ("Get Back To Typing"; page 53), memory ("Notebook Memory Maladies"; page 55), hard drive ("Hard Drive Hard Knocks"; page 58), and batteries and power adapters ("Power Problems"; page 61). Additionally, we've compiled repair/replacement information for portable devices ("Problematic Portables"; page 64), including digital audio players, portable DVD players, mininotebooks, smartphones, cell phones, etc. For situations when a professional is your best option, we've detailed what to expect from a repair service in "Go Pro" on page 66.

What's The Damage?

Detecting external damage to a notebook that has taken an unexpected tumble down a flight of stairs is



obviously easier than uncovering any internal harm done. Scratched, cracked, or shattered monitor screens; torn or loose hinges; and bent or broken DVD drive trays are all telltale signs your notebook is hurting. Conversely, verifying an internal component is kaput may rely on removing the case (check if this voids your warranty first) and/or picking up on signals after booting the system (provided it still will).

For example, missing lines, dim backlighting, splotches, a black screen, and "No Signal Source" error messages are all signs of monitor damage. Continual shutdowns can indicate a damaged or dying battery. Slow or erratic behavior in applications or the inability to access data can point



Panasonic's Toughbook CF-U1 is a rugged UMPC (Ultra Mobile PC) notebook specifically designed to withstand the types of bumps and bruises typical notebooks can't handle.

to a damaged hard drive or memory. Inside the notebook, loose connections between the motherboard and components and bent or broken pins are signs of damage. These situations can result in everything from a keyboard failing to respond to a fan not running,

causing damaging heat to build up inside the notebook. If you do ultimately seek professional assistance, keep in mind such factors as pricing, buying used vs. new parts, the part's expected life span, how long repairs will take, any shipping and related costs required, and guarantees the service provides.

Even before accidental damage or old age require repairing or replacing a part, it's good advice to have the notebook's documentation and a list of your notebook's components handy. Additionally, know exactly what your notebook's warranty covers and for how long, and consider insuring your notebook against damage and accidents. ■

BY BLAINE FLAMIG

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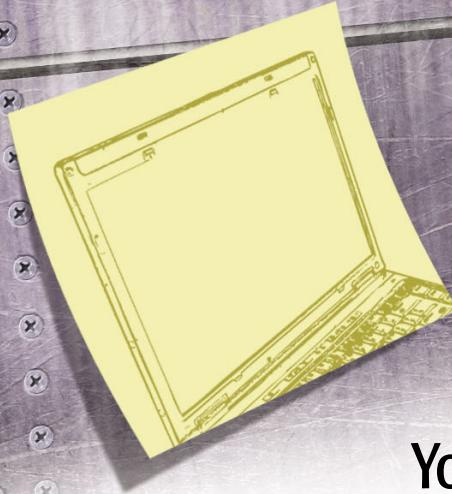
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66 Go Pro
Notebook Repairs, For A Price

FROM BROKEN TO BEAUTIFUL.



Repair Or Replace Your Notebook Screen

The convenience laptop computers provide is offset by one big drawback: fragile LCDs. Glass in the screen can crack, backlights and inverters can fail, cables can snap or detach, and any one of the thousands of transistors that power each dot of color (called a pixel) on the screen can fail.

The way LCDs are manufactured means that many problems don't have easy fixes that you can do at home. Often, you must send the screen in for professional repair (see "Go Pro" on page 66 for more information) or replace it using the step-by-step guide found later in this article. Determining if your laptop screen really does need to be replaced is tricky, however, so let's start with some troubleshooting of the common LCD problems users experience.

Symptom: There are one or more pixels on the screen that never change color.

Diagnosis: This happens when the transistor behind a pixel fails or only operates at full power.

Solution: Individual transistors cannot be repaired at home, and in

our experience, it doesn't help to tap or rub the affected area to "unstick" the pixel. This problem generally calls for professional repair or replacement.

Symptom: When there is fast motion on the screen, objects leave visible trails or look smeared.

Diagnosis: An LCD's pixels respond sluggishly compared to the pixels of a traditional CRT (cathode-ray tube) monitor or plasma display. When fast motion is displayed—especially on older LCD panels—the pixels can't keep up, and problems such as trails (ghosting) and smearing occur.

Solution: Upgrade to a newer LCD panel that has a faster pixel response time, preferably one that supports 120Hz technology.

Symptom: Text looks blocky on the LCD compared to a CRT monitor.

Diagnosis: LCDs display text so precisely that it is possible to see gaps that are smoothed over, making text appear blocky or less accurate compared to CRT screens.

Solution: You need to use font-smoothing software such as Microsoft's ClearType (available only for Windows XP and Windows Vista; www.microsoft.com/typography/ClearTypeInfo.mspx).

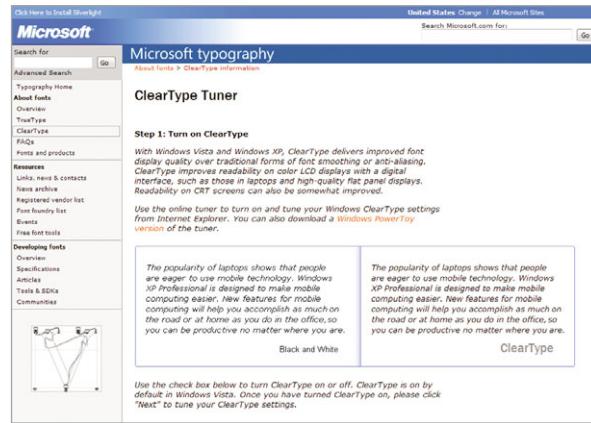
Symptom: Text and graphics look blurry on-screen.

Diagnosis: LCDs have a native resolution equal to the number of pixels wide they are by the number of pixels high they are (for instance, 1,280 x 1,024). If a lower resolution is selected, the LCD scales everything to fit the screen, making everything blurry.

Solution: Use Windows to select a resolution that matches the LCD's native resolution. In Vista, right-click the Desktop, click Personalize, click Display Settings, and use the Resolution slider to choose the native resolution before clicking Apply. (The highest resolution setting available is usually the LCD's native resolution, but if you are not sure, check the user's manual or contact the manufacturer.)

Symptom: Vertical or horizontal lines appear on the screen, or other graphic glitches randomly appear.

Diagnosis: This often indicates there is something wrong with the



ClearType smoothes fonts on LCDs so that text looks less blocky.

video hardware, video output port, or cable that feeds a signal to the LCD.

Solution: Contact the laptop's manufacturer to see if updated driver software for the graphics hardware is available; if so, install it. Also make sure the laptop is well-ventilated because problems such as this crop up when video hardware overheats. If none of that solves the problem, consider sending the system in for professional repair.

Symptom: The screen doesn't display any video at all.

Diagnosis: This happens for a number of reasons. Sometimes an external video display mode is selected, sometimes the backlight has failed, and sometimes the inverter or other video hardware has failed.

grounds for voiding nearly any factory warranty, and there's a good chance the manufacturer can replace the part faster and less expensively than you can do it on your own as long as the warranty is still in effect.

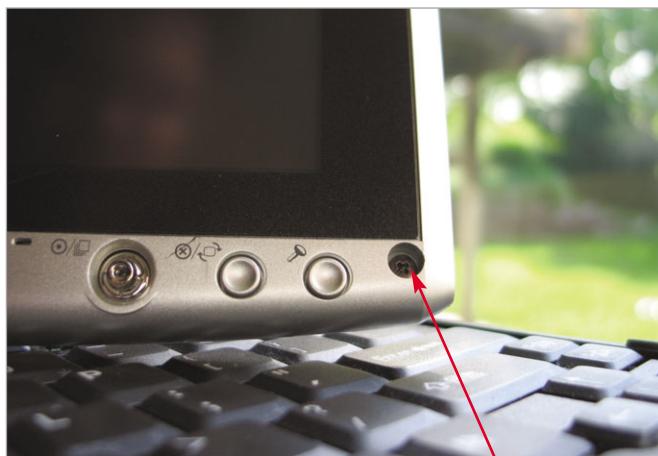
If the warranty has expired or doesn't cover the repair, request a repair quote from the manufacturer before contacting local repair shops, as prices can vary wildly. If you are willing to perform the screen replacement yourself, check prices online at a site such as ScreenTek (www.screentekinc.com) to see if replacement parts are readily available for your laptop make and model. Also, check to see if the company offers a step-by-step replacement guide for your particular computer,

you don't lose anything. Finally, your most important tool is a digital camera that will let you document each step of this process. Take several pictures during each step so you can refer back to them when reassembling the screen.

Step 1:

Make Sure The Computer Still Works

There's no point in replacing the laptop's screen if the rest of the computer is broken. If you know for a fact that only the screen has problems, skip to the next step. Otherwise, if a fall caused the damage or if something else could have damaged internal components, try booting the laptop and connecting it to an external monitor using the computer's video output port (assuming it has one). If the computer



When removing the old screen, look for grommets and stickers that hide screw heads and carefully pry them off.



After removing the bezel, glance at the area surrounding the screen to see if any cables are loose, disconnected, or damaged before removing the screen.

Solution: Use the laptop's documentation to make sure it is set to send video to the LCD and not to an external screen. If that doesn't work, you'll need to send it in for professional repair.

When All Else Fails: Screen Replacement

If the screen is cracked or the manufacturer tells you it needs to be replaced, check your warranty to see if the repair is covered. Removing any screws in the computer's case is

as the steps that follow are general in nature and may not apply 100% to your hardware.

A Do-It-Yourself Toolkit

The tools required to replace a laptop screen are simple. You'll need a set of small screwdrivers and a small blade or other sharp object. Wear gloves when putting in the new screen to keep your skin's natural oils from touching it, and also keep a tray handy where you can place screws and other components as they are removed so

doesn't boot at all or fails to output any video, professional help is necessary.

Step 2:

Remove The Old Screen

Before you begin, shut down the computer, unplug the power supply, and remove the battery. In most cases, the screws holding the screen's plastic bezel in place are covered by plastic or rubber grommets. Use a knife or other sharp tool to remove the grommets and expose all of the screw heads. Next, use a screwdriver to carefully remove each screw.

Use a flat-bladed screwdriver or your fingernails to gently remove the front bezel. If there is any resistance, try to find overlooked screws or plastic snaps that must be dealt with before the bezel will come off.

Tilt the screen forward and remove any screws, tape, or other fasteners that are used to secure it to a mounting bracket. Next, disconnect any cables that connect the screen to the inverter, video port, or other hardware.

If the old screen isn't cracked and the entire screen went out at once (as if it wasn't receiving power) check for loose, damaged, or cut cables. If a cable is loose or disconnected, reattach it, replace the bezel, and turn on the computer to see if that fixes the problem. If a cable is damaged or severed, it won't work even with a new screen until the cable problem is resolved. In that situation, we recommend taking the computer to a repair shop.

Step 3: Order The New Screen

When you remove the old screen, there should be a label listing its make, model, and specific part number. Write down this information before contacting a company such as ScreenTek or before contacting the manufacturer to order a replacement part.

At this point, you can opt to install the new screen yourself or let a professional handle the repair. If you are uncomfortable handling the replacement

on your own, or if you want to benefit from a warranty or other service offered by a repair shop, contact a shop and ask for a quote. Let the repair shop know that you've already ordered the necessary replacement parts and need a labor-only quote. You can also mail your defective laptop to ScreenTek (see the site for instructions), and its technicians will install the new screen at no charge, provided you purchase the replacement hardware from ScreenTek.

Step 4: Install The New Screen

Installing the new screen is exactly the opposite of taking out the old one. Connect all of the cables, mount the new screen the same way the old one was mounted (using your pictures for reference), and screw the bezel back into place to complete the repair. Take great care not to scratch the new screen when you move the bezel into place. Pop the grommets back into place using your fingers instead of using a sharp object.

Step 5: Test The Fix

Turn on the computer, make sure the screen is recognized and that the native resolution is selected, and test several apps to make sure everything



Only remove screws directly attaching the LCD, such as the one pictured here, and avoid similar-looking screws that don't secure the LCD to the case.



Once you have the screen tilted forward, check again for loose, disconnected, or damaged cables.

works. If it doesn't, it's likely a cable wasn't connected properly or that your graphics hardware, video port, inverter, or backlight failed. You may need to double-check the cable connections. But, in most cases, if the new screen doesn't work, your laptop has problems beyond the screen, and you should consider bringing in the pros. ■

BY TRACY BAKER

Advice For Mac Users

Many screen repair services that cater to PC users don't sell parts for Macintosh laptops, but that doesn't mean PowerBook and MacBook users are out of luck. Companies such as iResQ (www.iresq.com) specialize in Apple product repairs. iResQ offers two LCD replacement services, including handling the entire repair or simply

sending the replacement screen to you so that you can do it yourself. The latter option saves a lot of money, but instructions are not provided.

You can download instructions specific to your model at sites such as iFixit (www.ifixit.com), which also sells parts. However, be aware that opening your Mac's case voids the warranty, so you

should contact Apple to see if it can do anything before attempting the repair.

Installing a Mac replacement screen is different from the method described in this article in that you replace the entire top of the laptop instead of just the LCD. A special Torx screwdriver is needed to deal with the special Torx screws inside the

laptop, and you often must remove more parts within the laptop to release the harness that connects the top of the laptop to the bottom. If you can't find a guide covering your exact model, leave this repair to the professionals, as you can end up damaging a lot of other equipment if you don't know what you're doing. ■

GET BACK TO TYPING

Tips For Repairing Your Notebook's Keyboard

The circuits inside a keyboard are vulnerable to liquids, dust, food, and other particles. And because many notebooks are regularly used on the road or near open drinks, such as a morning cup of coffee, keyboard malfunctions are one of the most common notebook problems.

Unlike desktop PC keyboards, a broken notebook keyboard can be costly and time-consuming to fix. There are hundreds of different types of notebook keyboards, so you'll need to take the notebook in for repair or specially order a replacement from the manufacturer. Beside spills and debris, a wide variety of other issues, such as driver conflicts, loose connections, and stuck keys, can cause notebook keyboard problems. You'll need to perform some troubleshooting to find the root of the problem. In this article, we'll cover the notebook keyboard issues you're most likely to experience,

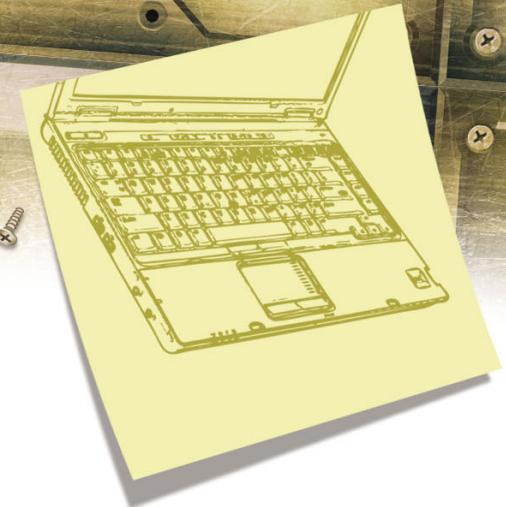
show you how to troubleshoot the problem, and provide tips for repair.

Handling A Spill

Many of us are guilty of drinking or eating over our keyboards, but when you spill liquid, it's important that you take the appropriate steps to fix the problem. According to Matt Kohut, product specialist for Lenovo, "The problem we see with spills is that people panic. It's really not the initial spill that's going to ruin your system; it's what you do afterward that's going to keep your notebook from failing or working."

If you spill liquid on your notebook, resist the urge to turn it over and shake it out. First, turn off the laptop and unplug the power cord. Next, quickly turn the notebook upside down in one swift motion—leaving the notebook open so the liquid doesn't sit on

the screen. Quickly turning over the laptop helps the liquid drain straight out of the notebook, while shaking the notebook may further spread the liquid over the keys



and hardware. When the notebook is turned over, remove the battery and let the notebook sit for a day or two in a dry place before turning it on again.

A Softer Approach

If nothing registers on-screen when you type, switch to another program to eliminate the possibility of application error. Next, restart the laptop to ensure that a glitch in the operating system isn't causing the problem.

If the keyboard is unresponsive after rebooting, connect the keyboard from a desktop PC to the laptop. For keyboards that use a PS/2 connector, your laptop must feature a PS/2 keyboard port, which is typically a purple color-coded, circular port. If the external keyboard works but the internal keyboard doesn't, the circuitry inside the notebook may be damaged, or you may need to reinstall the driver for your laptop keyboard.

The debris on and under a notebook keyboard can cause the keys to be



If you spill liquid on your notebook keyboard, power down the system, unplug the notebook from the wall outlet, and turn the laptop over in one quick motion.

unresponsive. Use a can of compressed air to blow any loose dirt out of the keyboard. If you've determined that a key is stuck, clean under the key.

First, unplug the laptop and remove the battery. Use a flathead screwdriver to pry the key from the keyboard and clean the area with a cotton swab using a little rubbing alcohol.

Seek Professional Help

Because opening the laptop's case may void the warranty, consider sending a notebook that is still under warranty to the manufacturer before you perform further repairs. According to Kohut, "Each manufacturer is going to have different return policies. Some notebooks come with on-site warranties, while others require you to send the laptop to a certain location for repair." Call the manufacturer to see what it recommends for your situation.

Scott Sims, vice president of Toshiba's Technical Service and Support, points out that "Parts can be purchased from a variety of authorized service providers, but keyboards can be problematic, and replacements should only be performed by a skilled individual." Replacement notebook keyboards may also be available to order from third-party companies. However, the third-party keyboards may not provide the

If a key is stuck because of debris or other dirt, use a cotton swab with a little rubbing alcohol to clean the area.

same functionality as your original keyboard, and the instructions may not be as complete as if you purchased a replacement keyboard from the manufacturer. In short, the safest course of action—whether or not the notebook is under warranty—is to stick with the manufacturer when sending in the laptop for repairs or ordering a replacement keyboard.

Crack It Open

Drops and bumps can loosen the keyboard's connection to the motherboard, and if you've tried software fixes without success and your notebook is not under warranty, check the keyboard's connection to the motherboard.

The keyboard removal process is different for each laptop, so reference your users manual or visit the manufacturer's Web site to find the appropriate steps for releasing the keyboard. Generally, you'll have to turn the notebook off, disconnect the AC adapter, and remove the battery. If the instructions require you to remove screws along the bottom of the case, set aside an area to store



the small screws so you don't lose them. Next, follow the instructions for how to release the keyboard from the case. For instance, on our Lenovo ThinkPad X300, once we removed the screws at the back of the case, we simply had to press the keyboard toward the back of the case and the front part of the keyboard popped up.

Raise the keyboard away from the case. Most notebook keyboards communicate with the motherboard via a short ribbon cable, and if you pull too hard, you may damage the motherboard or other hardware inside the laptop. To avoid shorting out any components, ground yourself by touching metal on the laptop's exterior case or other metal object. If the connector is unplugged, reference the manufacturer's online documentation or the labels on the motherboard to determine the correct orientation for the connector. Once the connector is securely attached, position the cable so that you don't pinch or bend it when you place the keyboard back in the case.

Advice For Mac Users

Mac users deal with a lot less hardware compatibility issues than Windows-based PCs. This is primarily because Apple only has to make sure its OS (operating system) works with a few different types of hardware. Therefore, you can probably rule out a driver conflict. You can follow most of the troubleshooting steps we

listed for Windows-based notebooks, such as trying an external keyboard and restarting the notebook.

If your MacBook's keyboard is unresponsive after trying it in another application or after restarting, take it or send it to an Apple Authorized Service Provider—either locally or a third-party online

shop—for repair. Apple's one-year limited warranty on your MacBook excludes damage resulting from unauthorized service, and MacBooks require special tools to open the top of the case, so we recommend sticking with Apple Authorized Service Providers, even if it is no longer under warranty. ■

Send It In

If you can't get the keyboard to respond, contact the manufacturer for troubleshooting help. Upon the manufacturer's evaluation, it can give you advice on whether you should send the notebook in for repair, or it may send you a replacement keyboard with detailed instructions for opening the case and substituting a new keyboard. ■

BY NATHAN LAKE

NOTEBOOK MEMORY MALADIES



Diagnose & Fix Notebook RAM Problems

Does your notebook seem to run slower than it used to? Do applications or Windows randomly crash? Although these problems may not initially seem like the result of a memory issue, bad or dislodged memory can cause a variety of problems that mimic other hardware- and software-related trouble. Fortunately, the memory in a notebook is one of the more user-friendly components to replace and install. In this article, we'll help you diagnose memory problems, show you how to reseat and install the modules, and discuss what you'll need to look for when shopping for replacement RAM.

Signs Of Bad Memory

RAM is a comparatively fragile component. It can be disconnected or physically damaged if you drop, step on, bump, or place too much weight on the notebook. If the RAM is dislodged, your notebook will seem to run slower than normal. Alternatively, damaged or partially connected memory may produce seemingly random crashes. In the case of damaged memory, data stored in the RAM can also become corrupted, resulting in application or Windows errors.

Damaged memory is more likely to trigger crashes during memory-intensive operations, such as when you're installing Windows or editing photos.

With more severe memory damage, nondemanding applications, such as using your Web browser or word processor, may unexpectedly close. Follow our memory troubleshooting steps when your notebook has inconsistent, hard-to-reproduce system failures.

Memory Loss

Most notebooks have more than one stick of memory, so the notebook may continue to run with one ineffective memory module. If you don't know your PC's total memory capacity, check your laptop's manual to see how much memory your notebook should list. In Windows Vista, click Start, Control Panel, System And Maintenance, and System. The number next to the Memory listing indicates the notebook's total memory capacity.

If Windows detects a smaller total capacity than what you expected, one or more of the modules may be disconnected, so you'll want to open the case and reseat the RAM. (Most current notebooks reserve a small portion of the RAM for use by the integrated

graphics processor, and the total memory capacity may be up to 128MB lower than you expect.) Reseating the memory is also a good idea if you're experiencing occasional system errors; sporadic performance can occur because the RAM is partially connected.

Most notebook manufacturers consider RAM to be one of the few "customer replaceable" components, so removing the covers on the back of the case or replacing the memory with appropriate modules isn't likely to void your warranty. If your user's manual indicates opening the case or replacing the memory will void your warranty, refer to "Go Pro" on page 66 for advice on seeking professional help.

Reseat Your RAM

Unplug the notebook from the AC outlet and remove the battery.



You'll probably need to remove the screws from a cover on the back of the case to access your notebook memory.

Additionally, you'll want to touch a piece of metal or use an antistatic wrist strap to ground yourself before working inside the case.

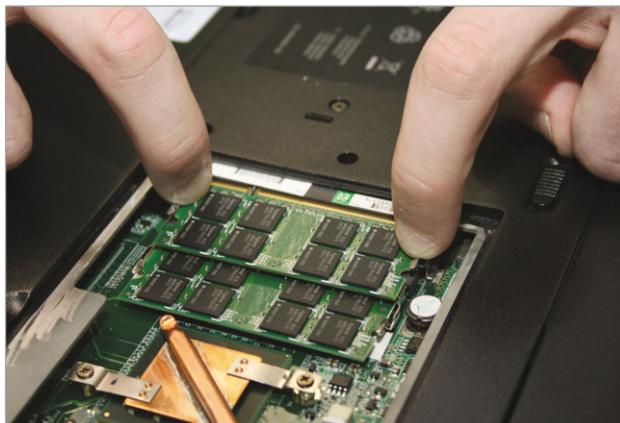
Most current laptops have a removable cover on the bottom of the case, so it's fairly simple to access the memory. You'll likely need to unscrew two or more screws that hold the cover in place. Although the memory may still appear connected, you should remove the module. Push on the clips holding the memory. The module should spring up to let you lift it out of the slot.

Once you've removed the RAM, examine it for any cracks or other signs of damage, such as burn marks. Write down basic information about the memory, such as the manufacturer, type (DDR [double-data-rate] or DDR2), and speed (such as 667MHz). Using this information, you can determine the type and speed of memory you'll need to purchase if it needs to be replaced. If the interior of the notebook appears dusty, use a can of compressed air to blow the debris out of the memory slot and the module.

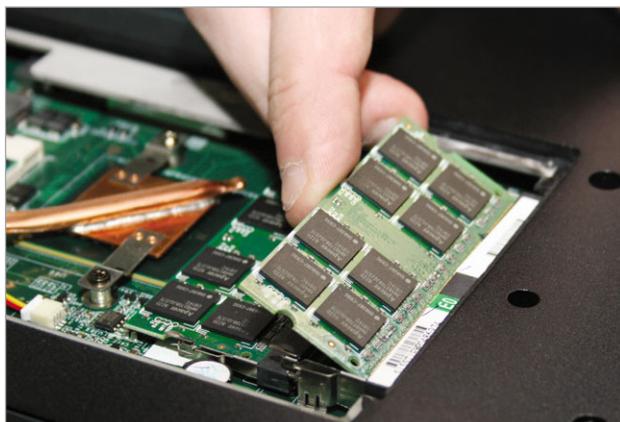
Louis Kaneshiro, senior technology manager at Kingston says, "When you reseat the memory, the RAM should insert at a 45-degree angle, and you'll want to press the module in until nearly all of the gold pins are in the socket." Kaneshiro also pointed out that "It's possible for the retention clips to grab the SODIMM [small outline dual in-line memory module] before the RAM is fully seated, and you'll want to press the module firmly to ensure a solid connection." Repeat this process for each RAM module in the notebook. Restart the notebook and see if you've resolved the problem.

Put Your Memory To The Test

If Windows won't detect the RAM or system crashes continue to occur, it's possible that one of the memory modules is bad. You can use Vista's Memory Diagnostics Tool to test if your note-



Push on the metal clips holding the memory, and the RAM should pop up to let you easily lift the module out of the slot.



Most notebooks let you insert the memory at a 45-degree angle, so it's easy to line up, apply pressure, and install the module.

book's memory is faulty. To run the utility, click Start and type **memory** into the Start Search field. Under Programs, select Memory Diagnostics Tool. At the dialog box, you can choose **Restart Now And Check For Problems** or **Check For Problems The Next Time I Start My Computer**. Either way, you'll need to restart your PC to run the utility.

The next time your notebook reboots, Vista will load the Memory Diagnostics Tool before Windows

finishes loading. On our test PC with 2GB of RAM, the utility took around eight minutes to run. During the test, the Memory Diagnostics Tool will list any errors it finds on the blue screen, and if the utility can determine which memory module is causing the problem, a **View Errors By Memory Module** option will be available on the lower menu. When the utility is finished, Vista will boot up and a dialog box will appear in the bottom-right corner of the Desktop. Click the dialog box to learn more information about the test's results.

If the Windows Diagnostics Tool detects a problem, we recommend that you replace the problem module. For notebooks with multiple modules, remove all but one of the chips and rerun the Windows Diagnostics Tool to determine which module is causing the problem, assuming the Diagnostic Tool doesn't list which module is the source of the problem.

It's also possible the memory slot on the motherboard could be damaged, so it's advisable to test "bad" memory in another slot before throwing it away. If you ran the test and the Windows Diagnostic Tool didn't find anything wrong, another piece of hardware or a software glitch may be causing your problem.

Get To Know Your Notebook Memory

Most notebooks use a type of memory called a SODIMM, which is about half the size of the standard DIMMs used in desktops. Some notebooks may use micro-DIMMs (even smaller than SODIMMs), so make certain you check the users manual for the type of memory in your notebook. Additionally, your notebook may use either DDR SDRAM (synchronous dynamic

RAM) or DDR2 SDRAM. The two types of memory have similar dimensions and the same number of pins, but DDR2 modules have different technology that allows it to transfer data faster than DDR modules. In addition, the notch on DDR2 chips is in a different position than DDR chips to prevent you from mismatching your notebook RAM.

When purchasing RAM, it's also important you buy RAM that runs at the appropriate speed for your notebook. Different speed modules may not be able to communicate with each other or the notebook's motherboard, resulting in system failure or unstable performance. Even if a faster module works, the faster RAM will run at the pace of the slower module, thus negating speed advantages of the faster memory. To assure compatibility, purchase matching modules from one manufacturer.

Select New Memory

You can use the information you wrote down when you reseated the RAM or download CPUID's PC

Wizard 2008 (www.cpuid.com) to find the type and memory speed your notebook supports. PC Wizard 2008 is free program that gives you a complete rundown of each component in your notebook. After you install PC Wizard, click the Mainboard icon in the Hardware section and select



When the RAM is fully seated, you should see only a small band of the gold pin edging.

Physical Memory. The Information tab displays a number of specifications about your memory. Each memory module lists the type and speed. Look for a compatible replacement module from a manufacturer that offers a lifetime warranty on RAM, such as Crucial, Kingston, or Corsair.

To make it easy to find compatible memory, most major memory retailers offer searchable databases that let you enter your notebook's

model and then returns a list of compatible memory. Kaneshiro says, "You can visit Kingston's Web site, select your notebook manufacturer from the Memory Search drop-down window, and choose your model number to find compatible memory for your notebook. It takes the guesswork out of finding the memory and gives you a perfect match."

Memory Replacement

You can follow the steps listed earlier for reseating your memory to install the replacement module, but rather than reseating the RAM, remove the bad memory and insert the new module. Once you screw the cover on the back of the case, boot up the PC and check the total memory capacity to make certain the notebook is

recognizing the new memory.

If the new module doesn't solve your problem and you've tried the RAM in another motherboard slot, the issue is likely with another component rather than with your new memory. Check the rest of our feature package beginning on page 48 to look for problems similar to the issues you're experiencing. ■

BY NATHAN LAKE

Advice For Mac Users

If you regularly get an "Out Of Memory" error message when working with demanding applications, it's a good idea to add some memory to your MacBook. You'll need a Phillips size 00 screwdriver and memory compatible with your MacBook model. Refer to the users manual to determine the appropriate type and speed of memory (recent MacBooks use DDR2-667MHz SODIMM modules). Note that some MacBooks

are configured to use both the memory card slots, so you may have to remove some of the original memory to increase the MacBook's total memory capacity.

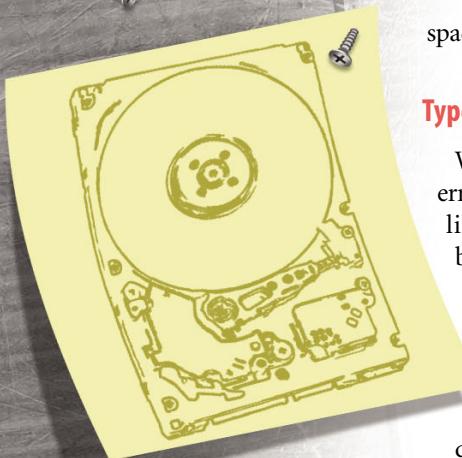
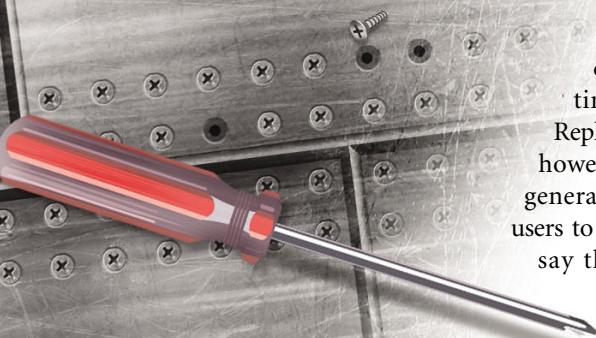
To install new memory, shut down your MacBook and disconnect the power adapter, as well as any other cords. Turn the MacBook over and insert a coin into the battery release latch. Turn the coin one-quarter of

a turn clockwise, and the battery should pop up. Lift the battery and use the screwdriver to remove the three screws in the L-bracket. Pull out the long end of the bracket, and the levers on the memory slots should spring out.

Touch a metal surface on the battery bay to ground yourself. If you need to remove one of the original modules, release the lever next to the memory to eject

the RAM. Next, match up the notch on the new memory with the notch on the slot. Press firmly on the module until nearly all of the gold edges are in the slot. If the levers don't move back to lock the memory in place, move the levers to the right until they close around the module. Replace the L-bracket, tighten the screws, insert the battery, and turn the latch one-quarter of a turn counter-clockwise. ■

HARD DRIVE HARD KNOCKS



Types Of Problems

When hard drive errors occur, you'll likely be greeted by an error message. The problem could be any number of things, including issues in the BIOS (Basic Input/Output System), a hard drive controller gone bad, or a hard

drive that the computer doesn't recognize. If you encounter an error message, search Google for the exact phrase to try and discover what you can do about it.

If your computer's performance is slow and you suspect the hard drive is to blame, run an error check. Windows Vista has an error scan function you can run, or you can download

Solve Notebook Hard Drive Problems

It can make your blood run cold, your skin crawl, or your heart skip a beat even more than the scariest horror movie: Your computer won't start. Or, it starts making awful noises and blasts you with error messages that resemble hieroglyphics more than decipherable words. These are signs of a hard drive that has problems or has failed.

For those who have spent time under the hood of a desktop, perhaps it's not quite so intimidating to replace a hard drive. Replacing the hard drive in a notebook, however, is a slightly different story. In general, notebooks are not designed for users to easily swap out parts. That's not to say that you *can't* swap out different parts—it's just sometimes a little more involved than working on a desktop machine, primarily due to the limited space in the case itself.



and run a utility such as Hitachi's Drive Fitness Test (www.hitachigst.com/hdd/support/download.htm). To use the Windows tool, right-click Start, click Explore, and locate your hard drive. Right-click the hard drive icon, select Properties, and click the Tools tab. Click Check Now under Error-Checking, select both checkboxes, and click Start. Follow the on-screen directions; you may need to reboot your computer.

Some errors are caused by outdated controller drivers. Find the numbers for the controllers (IDE [Integrated Drive Electronics] or SATA [Serial Advanced Technology Attachment], depending on the drive) in Device Manager. Click Start, Control Panel, System And Maintenance, and System. Select Device Manager in the left menu. Locate the IDE or SATA controller heading and expand it. Jot down the information and visit the manufacturer's Web site to check for possible driver updates.

If you've recently dropped your laptop and the

**Samsung's
Spinpoint N series
(www.samsung.com)
drives operate quietly.**

computer no longer recognizes the hard drive, it's likely a connecting cable is loose. If this is the case, you'll need to have a professional take a look at it.

Although there are a number of symptoms that could potentially present themselves when something has gone wrong with your hard drive, such as slow performance or error messages, the most telling symptoms that

your hard drive is about to bite the dust are clicking, grinding, and loud noise during operation. These are sure signs your drive is dying and needs to be replaced. In this situation, back up your data immediately and start shopping for a replacement.

Sometimes a hard drive will fail entirely, and the computer will not boot. At that point, you need to remove the old hard drive and replace it with a new one. You may need to send the old drive to a professional to recover your data. You should also send your computer to a professional if opening up your computer will void your warranty. Even if your warranty has expired, if you get into a situation where you need to dismantle a good deal of your laptop to get to the hard drive, it's a good idea to send it to a professional anyway. (See "Go Pro" on page 66 for more information.)

Buying A New Part

If a hard drive is simply kaput and you need to replace it, you should be aware of what to look for in a replacement hard drive, as well as where to shop for one.

Once again, consult the Device Manager to ascertain the type of connection your hard drive uses. Locate and expand the Disk Drives subheading. Right-click the hard drive and select Properties. In the resulting window, click the Details tab. Under the Property dropdown menu, select Enumerator. This will tell you what type of connector you have. Older laptops will probably have an IDE port, but SATA is the more common standard on newer models. If you are unable to navigate to Device Manager because your computer won't start or some other reason,

check your owners manual or the device manufacturer's Web site to see what type of connector your hard drive needs to be.

You can buy a hard drive at your local big-box store, but you may want

can also locate the drive you want on a manufacturer's Web site and follow its recommendation as to where you can buy it.



Before you remove the hard drive, unplug the computer and remove the battery.



Locate the notebook's hard drive cover and remove it.



You'll need to undo a catch or tug on a pull tab to release the hard drive cage.

to shop online so you can better compare prices. Online computer parts retailers are great places to find deals on a wide variety of products. You

What To Look For

Look for a hard drive that has enough storage capacity to easily accommodate all your applications, files, and folders. If all you need is enough space for a pile of Microsoft Office documents, a smattering of pictures, and MP3s of a few of your favorite rock albums, a 160GB hard drive will suffice. On the other hand, if your laptop houses your entire music collection, decades of digitized home videos of the kids and grandkids, and the 600 digital photos you took on your Alaskan cruise, you're going to need a beast of a hard drive—more on the order of 500GB. (However, it's worth noting that some of the largest-capacity drives may be physically too large for some notebooks; some of them are 12.5mm high and can't fit into the 9.5mm hard drive slot that is commonly found on most laptops.)

Check with the computer's manufacturer to make sure the 500GB drive of your dreams will actually fit in your notebook before you buy it. Finally, be sure to look specifically for a notebook hard drive; these will typically be 2.5 inches. Desktop computers usually use 3.5-inch drives, which won't fit in your notebook.

Other than storage capacity, the most important consideration when buying a hard drive is speed. The cache buffer size, which helps the hard drive retrieve frequently used data faster, is also something to consider. Most newer drives will have between 8MB and 32MB of cache.

How fast a hard drive spins affects read and write times, power consumption, and even how much noise you hear when your computer is in operation. Notebook hard drives spin at 4,200, 5,400, or 7,200rpm. A 4,200rpm drive is going to be a little slow, so opt for a faster drive. The faster a drive spins, the more battery power it will use and the louder it will be (unless those factors are mitigated by some other technology). If noise is a major issue for you, opt for a 5,400rpm drive or a 7,200rpm drive equipped with noise-reducing technology. Many new drives have fluid dynamic bearings to cut down on noise. For example, Samsung's Spinpoint drives are impressively quiet even at 7,200rpm, and Seagate drives have historically kept noise to a minimum.

Low-power drives will help preserve your battery life. A 4,200rpm drive will draw less power than a faster drive, but the downside is a loss in speed performance. SSD (solid-state disk) drives are a hot, up-and-coming technology. Using flash memory chips instead of spinning magnetic platters, SSDs are fast and use much less power than traditional drives. However, they're currently

very expensive and come in limited storage capacities. If battery life is your top priority, consider one of these two options.

A common cause of most notebook hard drive problems is simple wear



Remove the old hard drive from the cage, pop in the new one, and reverse your steps to install it.

and tear. A hard drive is comprised of sensitive moving parts and isn't designed to be jostled around, especially while in use. A particularly bumpy bus ride or an accidental drop can cause problems for a hard drive. The heads (the part of the hard drive that reads and writes from the disk) are just nanometers from the surface of the platter (the magnetic disk that holds data), and a jolt can cause the two to touch, which creates problems. Some hard drives are designed to sense when they're falling and automatically lock down to help prevent

damage. This is a feature of some newer Seagate drives, as well as MacBook hard drives.

Out With The Old, In With The New

Before replacing a hard drive, completely back up your data—if something goes awry, you'll want to have your data backed up and a disk image ready to go. Unplug the notebook and remove the battery. Wear an anti-static wrist strap before you start touching the computer's parts to avoid potential damage from static electricity.

The process of removing the hard drive will be slightly different for every computer. In general, though, you'll need to find where the hard drive is located on your computer. Usually, it will be covered by a plate on the underside of your laptop. Some hard drive covers will have a release button you can press, and you'll need to remove a couple of screws from the plate covering the hard drive. Once it's removed, you'll most likely encounter the hard drive encased in a drive cage of some sort. The cage should pop or slide out; you may need to first release a catch to remove it.

Once you remove any screws holding the drive to the cage, the hard drive should come out easily.

To put in the new hard drive, slide it into the cage and reverse all of the above directions. Do be careful that when you're placing the cage back into the hard drive cavity that you don't apply undue force—you could damage the cage, or worse, damage the port that connects the new hard drive to the computer.

Once you've successfully replaced the hard drive cover, you can plug your laptop back in and go about the task of installing the operating system and software or restoring your old system on the new drive from a disk image. ■

Advice For Mac Users

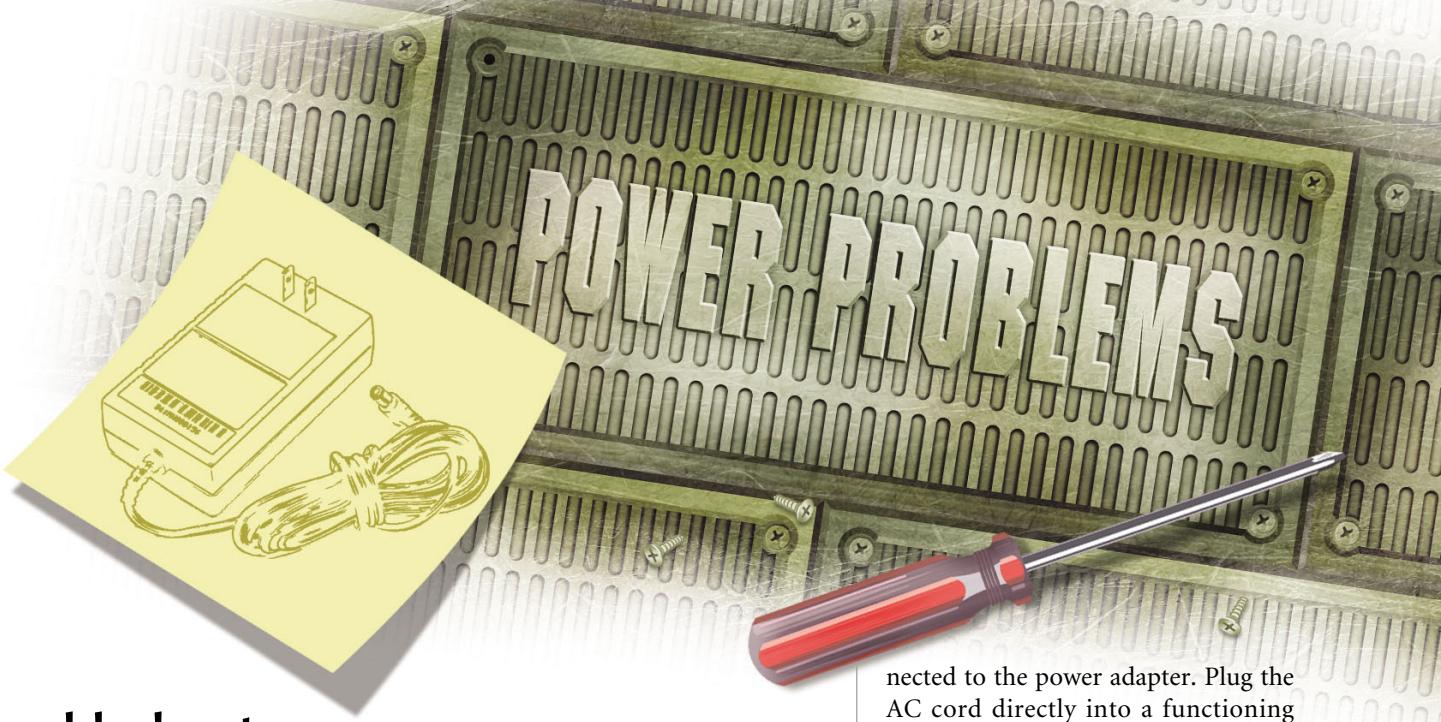
Removing and replacing a hard drive on a MacBook requires virtually the same steps as outlined in this article, although it's worth noting that doing so will almost certainly void your AppleCare Protection Plan warranty. A couple of differences are that you gain access to the hard drive through the battery cavity; there's no additional cover to

remove. Also, there is an L-shaped piece of metal inside the battery cavity that covers the RAM sticks and hard drive. You have to remove that before you can access the hard drive cage.

However, the same operation on a MacBook Pro requires significantly more effort. You have to disassemble half the laptop case to get to the hard drive, and there are

a couple of delicate cable connections you have to remove and replace during the process. You should not attempt to replace a hard drive on a MacBook Pro unless you're very comfortable working inside a computer. It may be better to let the pros handle this one—besides, that's what your AppleCare Protection Plan is for. ■

BY SETH COLANER



Troubleshoot Notebook Batteries & Power Adapters

Unlike other internal components of a notebook that we know can fail but hope will not, batteries are not intended to last the life of your notebook. Some may, depending on how often you use them, but many will need replacement at some point.

However, many other elements in the electric-plug-to-notebook connection, including the power adapter, can also cause problems, and failing components inside your PC can mimic power adapter or battery failure. The key to resolving your troubles is to isolate the problem as much as possible and then determine whether replacement or repair is best for your situation.

Troubleshoot Power Problems

We spoke with several PC technicians about notebook power troubleshooting, but Dane Ruegger of New Orleans' Crescent City Technologies presented the most straightforward explanation for us.

"Three components in the power supply can cause problems," Ruegger says. "These are the power cable, the AC [alternating current] jack, and the battery. As a general rule, if the notebook works fine when plugged in but won't hold a charge, the battery is bad. If the

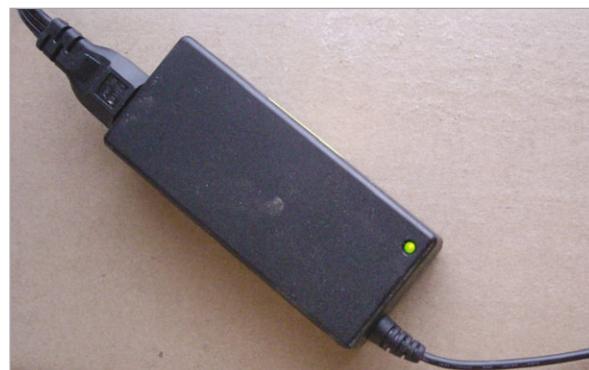
power adapter has a power light and it's off when the cord is plugged in, the AC cord or adapter is bad. And if the power light is on, but the battery won't charge and the notebook won't power up or only powers up intermittently, then the AC jack may be the problem." Ruegger also says to keep in mind that "other factors like bad memory, grounding, component shorts, blown capacitors, and system board failures can create similar problems. Determining where the problem lies can take a little skill or experimentation."

A Three-Step Process

Troubleshooting the components Ruegger mentions is a three-step process, which will also help you decide if you can handle the repair yourself or if you need to send the notebook in for professional service. (If your notebook works fine with the power cord/adapter plugged in and is only problematic while running on battery power, you can skip to Step 3.)

Step 1: Check the AC adapter. Make sure the AC cord is firmly con-

nected to the power adapter. Plug the AC cord directly into a functioning wall outlet rather than a surge suppressor or power strip. The adapter's power light should be lit (if your adapter has one). If the power light for the adapter does not illuminate, it indicates no power is getting to the adapter. That suggests either a faulty AC cord or adapter (or a faulty wall plug—test another one to be sure). Refer to the "Kick The Brick" section in this article for information on handling a damaged power adapter or jack. If the power light on the adapter lights up, move to Step 2.



A charging light on some power adapters indicates the component is receiving power feed.

Step 2: Check the power supply. Plug the power connector into the notebook's power jack, seating it firmly. Boot your notebook. The power, battery, and/or LED (light-emitting diode) on the notebook should light up. (This should happen as soon as you plug in the power con-

nector.) This light will usually be on the front or the back of the notebook, depending on the unit.

If no light comes on, the power supply cord (between the adapter and the notebook) or the power jack may be faulty. See the "Kick The Brick" section below for assistance. If the power/LED light comes on and the unit does not power up (you don't even hear fans and drives), the problem is not your power supply; it's likely time to seek professional help. (Refer to "Go Pro" on page 66 for information on seeking professional repairs.)

If the power/LED light comes on and the unit powers up, your power supply lines are likely fine, and the system board is receiving the power feed. You can test this conclusively by removing the battery and running the notebook without it. Power down your notebook and unplug the power supply and then turn the notebook over and

Lights on the front (or back) of your notebook will indicate whether it is receiving power.



run the PC with only the battery as the power source. If the notebook will not boot at all (not even fans and drives whirring), refer to the "Bat-tery Shop" section of this article for help with finding a replacement battery.

If the notebook boots, check the Windows battery meter (an icon of a battery with a power plug located on the right side of the Taskbar). If the battery power is less than 100%, you'll be able to test the unit most efficiently if you attempt to charge it fully. Shut down the notebook and leave the power cord plugged in overnight.

After the battery is charged, remove the power cord, reboot, and then

current battery life. If the numbers are close, you may be expecting more from your battery than its design allows it to give. Be sure to fully recharge your battery between work sessions. Your work habits—and not the battery—may be at fault.

If the battery dies much faster than the specifications indicate, your battery may be faulty or nearing the end of its life cycle, even if it indicates a 100% charge. If the PC is still under warranty, contact the manufacturer about a replacement. Otherwise, refer to "Battery Matters" below for assistance.



A sliding button springs open the battery compartment on many notebooks.



Changing out a notebook battery can be as simple as sliding the old one out and replacing it with a new battery.

open the battery compartment (usually a thumb-slide or other button affords access). Remove the battery, reconnect the power supply, and reboot. If all is good, the battery or battery charger board is likely your problem.

Step 3: Check the battery. Shut down the notebook, disconnect the power cord, return the battery to the compartment, and reboot. This will

recheck the battery life. If the battery meter icon shows less than 100%, your battery may be losing its charging ability and needs replaced. If it is 100%, run the unit without the power cord until you exhaust the battery. Perform normal operations but avoid using the wireless antenna.

Compare the battery life specifications that came with your PC to the

Kick The Brick

Power adapters and jacks can be damaged by rough handling, but it's more likely that you have stretched the cord at some point (especially the one that runs between the adapter and your notebook) and snapped a wire inside. Check for obvious signs of power cord damage. If you see any, replace the adapter.

If you don't see obvious cord damage, you have two easy choices: Replace the power adapter (about \$40 at an online retailer) or take it to a repair shop for testing. If the power jack is obviously damaged, head to the repair shop, as well.

Battery Matters

Lithium-ion notebook batteries lose their ability to charge over time,

even if you never use them. Frequent usage also affects charging capacity. As Brad Pervis, an Atlanta repair technician, explains, "We measure battery usage in charge cycles. Using all the charge in a battery equals one charge cycle. If you use 50% of the charge in a fully charged battery, then charge it up and use 50% of that charge, you have used one charge cycle. After a certain number of charge cycles, a battery will begin losing its ability to charge." According to Dell, the average user can expect a battery to begin losing charging capacity after 18 to 24 months of use; Apple reports users can expect 80% capacity through 300 full charge and discharge cycles.

What else can cause battery failure? Notebook batteries are generally as heat- and shock-resistant as the rest of the notebook components. Abuse can damage batteries, but normal wear and tear shouldn't. Some batteries have experienced problems due to issues with **firmware** (programs embedded in the hardware of the notebook or its components that help control functionality). Users of some Acer and Apple notebooks, in particular, report firmware-related problems. If you haven't abused your notebook and battery life is dropping faster than you expected, contact the manufacturer to see if you need a firmware update or a battery replacement.

Advice For Mac Users

As the top-selling brand of notebooks in the \$1,000+ range, Apple notebooks are no longer the lone, unsupported wolves they used to be. Many companies sell replacement batteries and power adapters, including numerous Apple resellers, Apple itself (www.apple.com/batteries/notebooks.html), and online resellers, such as Laptops For Less (www.laptopbattery.net).

Batteries in a properly functioning notebook cannot be overcharged, but lithium-ion batteries perform best when they are used periodically. Keeping your batteries constantly connected to a power source if you do not use them will shorten battery life; therefore, remove your batteries when you aren't using them for long periods of time. Furthermore, running your batteries all the way down before charging will not hurt (or benefit) them.

Finally, don't worry about your batteries catching fire, unless you have a notebook built between 2004 and 2006 and have not checked to see if you need a replacement. (In case

manufacturers are doing their best to ensure it doesn't.)

Battery Shop

If your notebook won't boot while operating on battery power or you think your battery may be faulty, a new battery will either resolve the problem or prove that something else (such as the charging board) is at fault. Companies that sell a variety of replacement batteries include Planet Battery (www.planetbattery.com), LaptopBatteries.com (www.laptopbatteries.com), and others.

For most users, replacing a worn-out or nonfunctioning battery is easy. (An exception is the MacBook Air. See the "Advice For Mac Users" sidebar for more on this.) Even in older notebooks, most batteries are accessed through a panel on the bottom of the machine. Look for a thumb-slide or other toggle button to open the panel. Shut down your



If you are not sure which replacement battery to buy, check the battery for a reference or part number (shown on the top left).

you haven't heard, Sony sold millions of defective batteries that, under certain conditions, could cause the battery to catch fire. After placing partial blame on the PC manufacturers, Sony eventually recalled some 10 million batteries, including many of those in its own VAIO line.)

No one can promise that such an oddity won't occur again, but given the hit that Sony took over this incident, you can bet that Sony and other computer equipment

PC (or put in into Hibernate mode with the power cord plugged in) before battery removal, unless your PC's documentation advertises the battery as being hot-swappable.

To locate the appropriate battery for your machine, remove the battery and examine it for a part number. Some batteries specifically instruct you to only use a particular replacement. If this is not the case, you may be able to bump up to a more powerful battery (check with the manufacturer). The higher the Whrs (watt hours) of the battery, the longer it will hold a charge.

Note that you can repair a notebook battery, but the work requires advanced mechanical skill. If you are interested, check out the book "The Laptop Repair Workbook" by Morris Rosenthal (www.fonerbooks.com/workbook.htm), which has an extensive section on battery repair. ■

Furthermore, users can replace both the power adapter and battery themselves, with the exception of the MacBook Air, Apple's new notebook. Apple recommends that users send their MacBook Air units in to the company for battery replacement (\$129) because of special configuration issues that relate to the MacBook Air's exceptional thinness. ■

BY JENNIFER FARWELL

PROBLEMATIC PORTABLES



Troubleshoot & Fix Mobile Mishaps

Nothing delivers convenience better than today's portable electronic devices. Whether you want music on the go or to communicate with anyone at any time, MP3 players, smartphones, and other gadgets allow us to be as functional on the road as off of it. But by their very nature, these devices are incredibly prone to accidents—after all, if they can be held in a hand, they can be dropped from a hand. As such, they require troubleshooting methods not often seen with other computers.

Go For A Swim?

Portable devices have become so ubiquitous—and so small—that it's easy for people to forget that their phones or MP3 players are in their pocket. For some users, this occasionally leads to the inevitable dunking of the phone, whether in a swimming pool or in a sudsy washing machine.

If a device gets wet, the good news is that iPods, smartphones, and other

devices can sometimes survive jaunts through pools, washing machines, or the rain if the right steps are taken to revive it. But before tackling the correct steps, first be aware of what *shouldn't* be done.

Although some users have had luck using a hair dryer to "dry" devices, this is a potentially dangerous option, as components inside the device can be damaged by the dryer's sustained heat. Placing the device in a microwave—even for only a few seconds—is truly a recipe for disaster, because sparks can easily melt the device. Finally, leaving the device to "air out" for days might meet with success, but there's an equal chance that the liquid will simply have more time to damage internal components.

"If [a device] is ever submerged in water, there is a possibility to save it," says Ish Matos, a double agent for the Geek Squad (www.geeksquad.com). "Take a cooking pot or deep bowl and fill it up with uncooked rice. Submerge the phone or electronic device in the

rice and leave it for a few hours. The uncooked rice will absorb all the water that lurks in the phone. After a few hours, you should be able to take the phone or device out of the rice and use it normally."

Although this solution might sound like an old wives' tale, it's amazingly effective for eliminating moisture from devices, thanks to the natural desiccant properties of the rice. Another option is to use prepackaged desiccants, such as the silica gel packets included with new shoes and other items. However, you'll need quite a few to fill up a bowl that can accommodate your soaked device.

All Cracked Up

All of the convenience provided by a portable device can be shattered—literally—in an instant if you drop the device and the LCD screen cracks. Although some brave users have found replacement LCD screens, opened their device, and replaced the screen, the screen replacement process is far too complicated for most consumers.

"At this point, [the device] is usually beyond repair. Most phone providers



Rice à la phone? You won't find this recipe at Epicurious.com, but you will find it to be an effective solution for sapping the moisture from a waterlogged device.

replace the phone with a refurbished model if the customer has their insurance plan," Matos explains. Although insurance plans might provide replacements, most warranties and service plans do not cover accidental damage. You'll need to pony up for a replacement screen or contact the manufacturer and ask about its replacement policy.

For example, due to conditions under the Apple warranty stating the company won't cover damage caused by accidents or abuse, users with cracked iPhone screens will generally need to pay the out-of-warranty/accidental damage repair cost, which is \$199 for the 8GB model or \$299 for the 16GB model, plus shipping and handling.

Busted Battery

Owners of smartphones and similar portable devices enjoy the luxury of easily replacing the batteries in the devices when they've reached the end of their useful lifetime. But other devices, such as iPods, aren't so friendly. Many owners of faulty iPod batteries send their devices back to Apple,

but there are other options for people who want to try their hand at the repair. There are plenty of battery replacement kits available both online and in retail stores that not only include a new battery but also the tools and instructions necessary to replace the old battery.

Although the precise instructions can vary depending on the iPod model, most battery replacements follow the same formula. First, turn off the iPod. Next, use the plastic tool (included with the kits) to pry open the case. Then, remove a connector from the circuit board to separate the top and bottom pieces of the case. Remove the hard drive by detaching another connector. Finally, access to the battery is granted. Detach the battery by pulling a connected cable from the circuit board. To install the new battery, this entire process is then reversed.



Although it appears intimidating, an iPod's hard drive easily flips up, letting you disconnect it from the circuit board.

DVD Demise

Portable DVD players are great for movies on the road, but when they won't play DVDs, they're about as useful as a rock. However, this problem isn't always the player's fault—if the disc is too dirty, the player won't read it. Clean the disc if it's dirty or smudged. If the player itself is excessively dusty or dirty, it might not recognize DVDs, so check the manual for cleaning tips.

If a DVD spins up but won't play in a portable player, unplug the power or remove any batteries and let the unit sit for an hour. Replace the batteries or plug in the unit and try it again. If a DVD

is stuck in the player, the disc can be manually ejected by inserting a paper clip into the small hole near the disc tray.

More Ways To Break

Whereas a basic cell phone can have just a few things go wrong, a complicated smartphone has more circuitry—and potentially more that can break. "It almost seems that the more a phone can do, the more prone it is to break," says Matos. "Each cool feature needs circuits to keep it up and running, so the more technology packed into a phone, the more fragile it is in an accident."

Matos recommends that smartphone users regularly sync their device with their computer, so that in the event of an accident, the data is still available. Data residing on other devices with hard drives, such as iPods and other MP3 players and PDAs (personal digital assistants), can also be backed up to a computer. ■

Don't Toss It—Recycle It

There comes a point in every relationship between user and gadget when it's time to say goodbye. If the device is still functional, it can be sold, traded, or given away, but if it's broken and can't be fixed, the options are slimmer. Many users simply opt to toss the device in the trash, but a more environmentally friendly option is to recycle it.

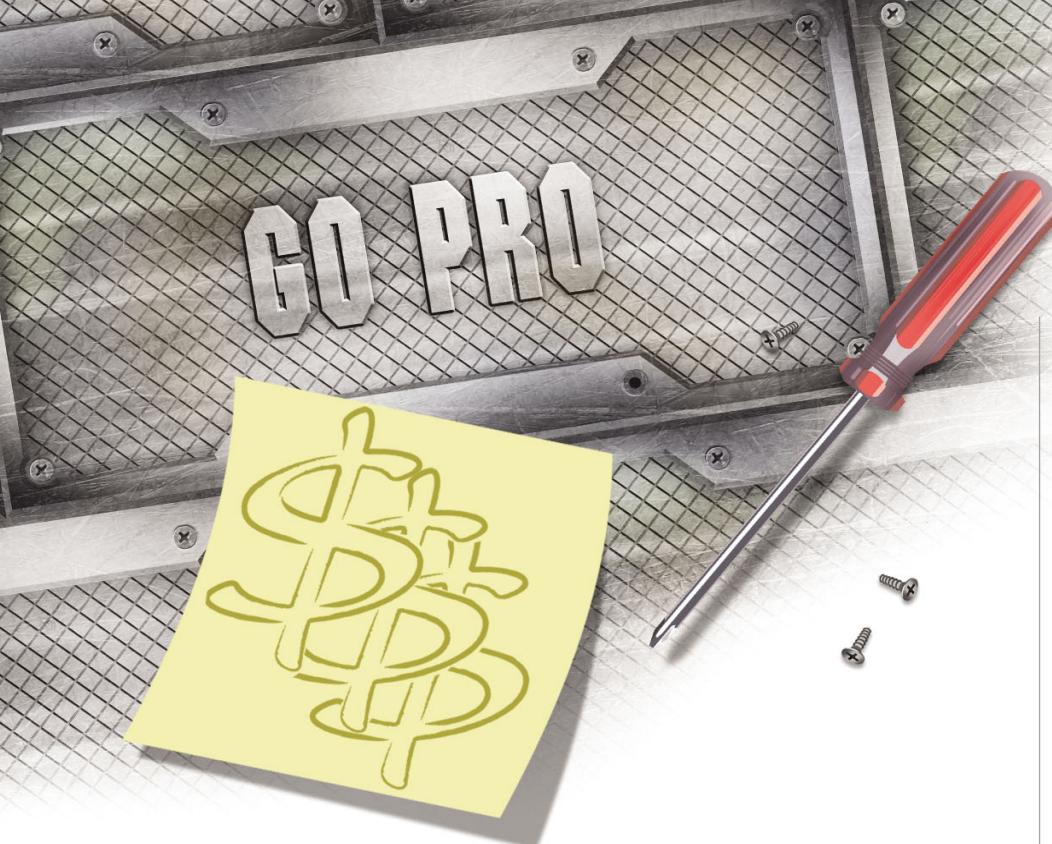
Over recent years, scores of recycling outlets have appeared that will gladly take broken

or unused devices off of consumers' hands. For example, Best Buy has kiosks near the front doors of every store that accepts old cell phones, rechargeable batteries, and other items at no cost. For a small fee (\$5 to \$15), Office Depot offers Tech Recycling Boxes (at participating stores), in which used consumer electronics can be placed and sent off for recycling. Staples offers a similar in-store service, called EcoEasy, that lets consumers

recycle cell phones and small handheld devices at no cost, or consumers can opt to participate in the company's online trade-in program.

Device manufacturers and service providers also offer their own recycling and trade-in programs. These companies include AT&T, Dell, HP, LG Electronics, Motorola, NEC, Nokia, Palm, Samsung, Sony, Sony Ericsson, Sprint, T-Mobile, Toshiba, and Verizon. Check each company's Web site for details. ■

BY CHRISTIAN PERRY



Notebook Repairs, For A Price

Notebook repairs can be daunting compared to repairing a desktop computer. Parts aren't as readily available, components are less standardized, and everything's so much *smaller*. There's simply less room for error. If you're not feeling up to making notebook repairs yourself, or if you don't have ready access to parts, call in a professional. There are numerous options for bringing in outside help when notebook problems arise. We'll help you understand when it's time to bring in the pros, how to go about choosing a service, and what you might expect to pay in a variety of situations.

Service Options

Before we get into details of when and how you might want to enlist professional assistance, let's discuss the various service options. The first and cheapest (if you're covered) is the manufacturer's warranty or service plan. In this case, the manufacturer or retailer is bound by a promise to repair or replace defective hardware. Of course, by the time you need repairs, warranties

and service plans are often expired or not applicable to your problem. We'll talk more about the ins and outs of extended service plans at the end of this article, but you should always check to see whether you're covered under a warranty anytime you run into notebook hardware trouble.

Two alternatives, which are the only options if you are not covered by a warranty or service plan, are to pay for ad hoc service or make the repairs yourself. Both approaches have plenty of pros and cons, and the right answer for any given situation depends on the nature of the problem, the availability of parts, and your own comfort level with performing the work yourself. We'll mostly focus on the choice between these two options, though we'll point out when a warranty or service plan would be especially helpful. Keep in mind that some problems, such as hard drive data recovery, require specialized professional services beyond simple repair or replacement.



Extended service plans, such as HP's Total Care, can take the guesswork out of bringing hardware issues to the pros.

Integral Components

As a general rule, the more intricate and expensive the hardware component, the more likely it is to benefit from professional intervention. Parts such as motherboards, CPUs, graphics adapters, cooling fans, and notebook screens are more difficult, expensive, and risky to repair on notebook PCs than on their desktop counterparts. These are also the hardest parts to find. Finally, these components are often highly proprietary in commercial brands. For instance, your eMachines desktop PC may be able to mix and match between Intel CPUs and any variety of motherboards or graphics adapters. But notebook PCs rarely provide that level of interoperability. Many manufacturers won't even build motherboards that work with other manufacturers' hard drives.

If you experience trouble with any of these components, strongly consider calling in professionals right away. Even keyboards, one of the most basic parts of a desktop, are a major operation to replace on a notebook. You may find a lack of parts, uncertain compatibility, inconsistent form factors, and the

voiding of any existing warranties if you attempt your own repairs in this category. Engage the tech support department of your notebook's manufacturer first to correctly diagnose the issue and find out about your options for direct repair or replacement. You'll often have to live without your machine during shipping and repair periods, but if you

can deal with the downtime and price tag, this is the safest option for serious repairs. If you're in more of a rush or have a trusted local alternative, consider contacting a local service or licensed retailer to address the issue. For instance, Best Buy and Circuit City both offer repair service, as do most independent computer retailers. Do some homework first, though. Make sure your

potential savior has experience with your notebook's make and model, has ready access to the necessary parts, and offers a warranty on the work.

Removable Components

Components such as memory, hard drives, and optical (CD/DVD) drives are nearly as important as displays and processors but are much easier to remove and replace without professional assistance. If you're comfortable making home repairs inside desktop computers, you should be fine with fixing these components in a notebook. The pieces are smaller and may not be familiar to you, but with help from *Smart Computing* and by searching Google (www.google.com), you can find plenty of detailed instructions and tips for safe and reliable repairs.

On the other hand, if you've never cracked the case on any computer and don't know a case fan from a ceiling fan, this probably isn't the time to learn. In that case, lean on your service plan or engage a reputable local retailer to fix the problem at hand. Even if you're confident in your skills, you may have to order parts online. You can easily end up with an incorrect form factor, unsupported model, or low-quality hardware when you don't know exactly what you're shopping for. These are also good situations for professionals to

handle—at least you'll have some recourse if your system doesn't recognize its new memory or the new hard drive is too big to fit in the case.

Portable Components

On the other hand, certain parts of your notebook are completely portable and easily swappable. Even the most novice users can replace power supplies, batteries, and docking stations. These components are rarely worth repairing and are easily removable without any detailed instructions. When these parts go bad, the most prudent option is usually to replace them outright.

By definition, you won't need a lot of help replacing these components. Simply order a new part, remove the old one, and install the new one. You may need to seek professional help to make sure you're getting compatible parts, but your notebook manufacturer's support site is just as likely to provide specific model numbers for removable components. Just make sure the new parts match the model numbers. (Also, refer to the rest of this month's feature package section "Repair Your Notebook" beginning on page 48 for advice on how to determine and shop for the correct parts for your notebook.)



Retail services, such as Best Buy's Geek Squad, provide in-store or in-home repair and replacement on an as-needed basis.

Service Plans

Extended warranties or service plans are usually available for a modest extra charge at the time of purchase from either the manufacturer or retailer. These are generally more extensive and come with better repair options than basic manufacturers' warranties. Service plans are most useful in situations where doing your own repairs is impractical or outside your comfort level. Expect to pay between \$100 and \$300 for an extended service plan, depending on the contract's length (usually one to three years) and service options (carry-in vs. at-home;

repair vs. replacement). Depending on the notebook, the cost of an extended service plan can make up as much as a third of the total price of the notebook. But it's also roughly the cost of a single major hardware failure. The less you can afford to lose on laptop hardware that goes bad, the more valuable extended service plans become.

Service plans, however, are usually only valid for a set time. You'll have to pay more for a longer period or risk having the plan expire before hardware problems set in. They're also sometimes limited to particular sets of conditions. If you're going to pay extra for a service plan, make sure it covers all hardware repairs or replacement, offers extended-hours tech support, includes labor and parts, and provides service in-home or at nearby locations.

Notebook hardware problems won't always require professional intervention. For major issues or for those things you just don't know how to fix, it's nice to know that there are plenty of people out there willing to help—for a small fee, of course. ■

Sourcing Services

You can buy your own notebook parts, but who's going to do the installation? Sometimes, repair services can even fix hardware problems without buying new parts. Here are some rough estimates for what you might expect to pay for a variety of components and for a professional to repair or replace them.

Component	PC Part	MacBook Part	Repair Service (excluding parts)
Screen	\$200 to \$300	\$250 to \$350	\$100 to \$200
Keyboard	\$25 to \$75	\$75 to \$125	\$50 to \$75
Memory	\$25 to \$50	\$25 to \$75	\$50 to \$75
Hard Drive	\$50 to \$100	\$75 to \$150	\$50 to \$100
Battery	\$50 to \$100	\$50 to \$100	N/A
Power Adapter	\$25 to \$50	\$50 to \$75	N/A

BY GREGORY ANDERSON

Search The Tech Support Center!

Computers, printers, and other devices are wonderfully helpful tools—when they're working. But it's frustrating when a computer won't boot up or a printer won't, well, print! The only thing more frustrating is not knowing where to find answers.

Now, it's easier than ever to find the information you need by searching SmartComputing.com's Tech Support Center. Simply type a word in the search box, and you'll find information on that topic from different areas of the Tech Support Center including Solutions Knowledgebase, Security & Privacy Web Log, Basic Troubleshooting Articles, How To Install, and many more! Topics ranging from hard drives and printers to the Blue Screen Of Death and that pesky Red X are all covered extensively in an easy-to-understand problem/solution format. Accessing this information is simple; here's how:

1. Go to SmartComputing.com and click the Tech Support Center link.
2. Enter a subject in the Search box and click Search. Avoid using words such as "problem" or "malfunction" and use the Top Subjects links whenever possible.
3. Read through each section to find numerous articles on your search topic.

Subscribers, keep in mind that you can save all of the articles in your Personal Library to use for future reference. Simply log in and when you find an article you would like to keep, click the Add To My Personal Library link at the top of the page. Create as many folders as you like in order to keep your information organized and accessible.

RAMAC

This month, in 1956, IBM released the first hard drive: RAMAC (Random Access Method of Accounting & Control). The drive weighed 1 ton and could store 5MB of data.



PC Security

In this age of identity theft, computer users should pay close attention to security and privacy issues. Protect your PC by following the advice in the Security & Privacy section of the *Smart Computing* Tech Support Center.



Fun Fact Of The Day (July 1, 2008)

One Billion PCs & Counting . . .



The folks at Gartner have determined that the number of installed PCs, or PCs currently in use, globally is now more than 1 billion. Gartner also says that the number of PCs in use in the world over is growing at a 12%-a-year clip, meaning that by 2014, the world will be running more than 2 billion PCs.

Smart Computing's Tip Of The Day (May 10, 2008)

A Misbehaving Router

If you can access the Internet when you connect directly to your broadband modem, but not when you put a router between the modem and your PC, one solution is to reset your network devices. This gives them the chance to reassign IP (Internet Protocol) addresses and connect to each other without conflicts. To completely reset your network devices, power off your PC and then unplug your broadband modem and router. Leave the units unplugged for a few minutes. Consult your device manuals to determine whether you need to perform any additional tasks to reset the devices (some units have Reset buttons, for example). Finally, plug in and power on your devices, starting with the broadband modem, then your router, and then your PC.



Microsoft Word 2007

Use Text Boxes For Layout: Part 1

For most of its life, Microsoft Word performed only as a word processor. You could write letters and reports and create other basic documents, but there were few options for laying out a page in an interesting way. Those duties were the realm of complex desktop publishing programs such as QuarkXpress and Adobe's PageMaker and later, InDesign.

Microsoft Word has come a long way since the days when it resembled an electronic typewriter. With Word 2007, you can create layouts that resemble those made by a desktop publishing program. There are many tools you can use to do this, such as graphics, specially treated text called WordArt, diagrams called SmartArt, and a myriad of shapes. In this and next month's column, we'll talk about text boxes, an important tool for creating unique layouts that's been enhanced in Word 2007.

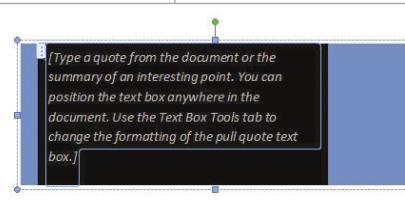
The Importance Of Text Boxes

On a standard Word 2007 page, you type text according to the width and orientation of the page, margins, and columns, if you are using them. Text boxes, on the other hand, let you place text, as well as graphics and some other items,

inside a box that you create on a page. The box can then be resized and dragged to any position on the page. Boxes can be linked to each other so that chunks of text can be threaded. These qualities of the text box help give Word some of the flexibility of a desktop publishing program.

Let's look at how to place a text box and perform some basic operations with it. Create a new blank document in Word. The Text Box button is on the Insert tab of the Ribbon. Because we are going to be working with it a lot, right-click the button and select Add To Quick Access Toolbar. Now you can access it without having to open the Insert tab over and over.

Click the Text Box button to open the gallery of built-in text boxes. A thumbnail of each of the 36 text boxes is shown, and more information about each is shown in an expanded tooltip if you pass the cursor over it.



This is the built-in Contrast Quote text box as it appears right after you place it.

The handles along the right side don't appear because the quote is flush against the edge of the page.

Place A Text Box

Make sure you are seeing the document in Print Layout view. Click the View tab on the Ribbon to make sure. Now click the Text Box button and select the Contrast Quote text box by clicking its thumbnail image. The text box is placed on the right side of the page with some text inside it that provides tips on how to use the box. A tab called Text Box Tools appears on the Ribbon when the text box is selected.

When it first appears, the box has several handles, one for each corner and one for each side. You can click and drag one of these handles to resize the text box. Text will reflow to fit the box size as long as the box is big enough to accommodate it.

There is also a handle above the box. This handle is available only for text boxes (like this one), which contain a part that can be rotated. The text itself will not be rotated when you use this function.

Don't use a handle to move the box. Instead, hover the cursor over the outline of the text box until it turns into a symbol with four arrows. Click and drag the box toward the center of the page. Now click inside the box and press the DELETE key. The text disappears and a cursor is placed where you can type or copy and paste text.

Type some text in the box. It will appear in the box with the built-in formatting, which in this case is the Calibri (Body) font in 11-point italic, in white. You can find this information, and more, by right-clicking inside the box to display the floating mini-toolbar.

Now copy and paste some text into the box. If the text you copied is black, it disappears against the black background. Click the Paste Options button tag and choose Match Destination Formatting to make the pasted text match what is called for in the text box.

Now you have the very basics for creating a text box, but there is so much more you can do. See our column next month to find out how to more precisely position your text boxes, change shapes, add or change colors, thread text, and more. **II**

BY TOM HANCOCK

Browsers

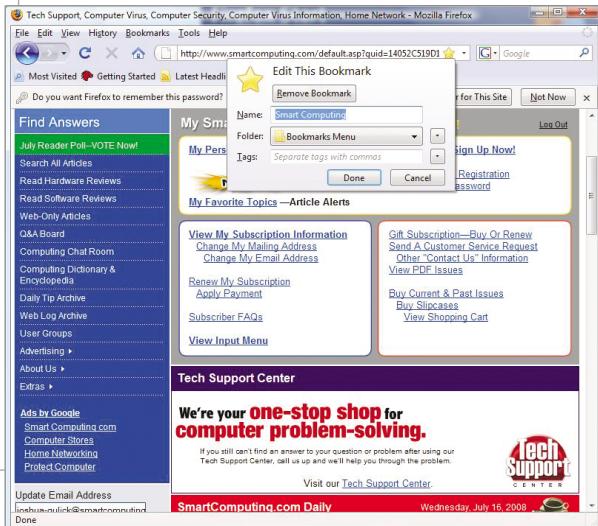
Organize Bookmarks In Firefox 3

Unlike the previous version of Firefox, the new Firefox 3 includes major updates to the Web browser's bookmarking tools. Finding and organizing bookmarks is easier than ever, thanks to new features such as Stars, Tags, and Smart Folders.

New Sorts

The basics of bookmarks remain the same. You'll find a Bookmarks menu that includes your full list of bookmarks, which can be grouped into different folders by selecting Organize Bookmarks and working with the Library. There's also a Bookmarks toolbar, which can now be customized by dragging or saving bookmarks to the special Bookmarks Toolbar folder in the Library.

The Bookmarks menu includes some new folders, including Recently Bookmarked and Recent Tags. Both let you jump quickly to a page or site you recently saved. There's also a new default general depository, aptly titled Unsorted Bookmarks, where all unsorted bookmarks land. You can find that in the Library, as well.



One-Click Star

Adding new bookmarks in Firefox 3 is different and a little easier. The Address bar includes the outline of a star on the far right side. Click the star once, and Firefox changes its color to yellow, which indicates that the current page is now bookmarked. As noted, you'll find the new bookmark waiting in the Unsorted Bookmarks folder.

If you prefer to go beyond the general bookmark depository, click the star a second time. A new Edit This Bookmark dialog box pops up. From here, you can remove the bookmark, rename its title, and file it in a specific folder. Click the drop-down arrow beside the Folder field to browse for a specific storage location. You can add new folders through this dialog box, as well.

Bookmark Tags

The final option on the Edit This Bookmark dialog box is to add tags describing the bookmark. The tagging feature lets you go beyond typical one-folder sorting; instead, you can tie one or more keywords to the bookmark and its contents. For example, perhaps you want to categorize a blog about TV shows as relating to both "television" and "blogs." By tagging it with both words, you can categorize it both ways.

Once you have a set of bookmarks well-tagged, head to the Tags folder in the Library to browse. Click any tag to see a list of all bookmarks associated with that tag. If you start relying on tags, it's a good idea to drag the Tags folder from the Library to your Bookmarks Toolbar.

Smart Folders

Another upgrade is the Smart Folders feature, which automatically collects bookmarks based on searches you've run. In the Library, search for a word that shows up in at least one bookmark's title or tags. After the search results appear, click Save and then enter a name for your saved search. The new folder appears in the Library. Whenever you save a new bookmark that matches your saved search, it will show up in the new Smart Folder along with the previous search results.

You can also create Smart Folders based on your browsing history. Back in the Library, click History. Run a search as before. You'll see matches from pages that you've recently visited. Click Save and Firefox creates a new folder that will automatically update as you browse the Web.

Combined with descriptive tags, Firefox 3's Smart Folders feature can basically organize your bookmarks for you. ■

BY ALAN PHELPS

Online

Make Maps With Google

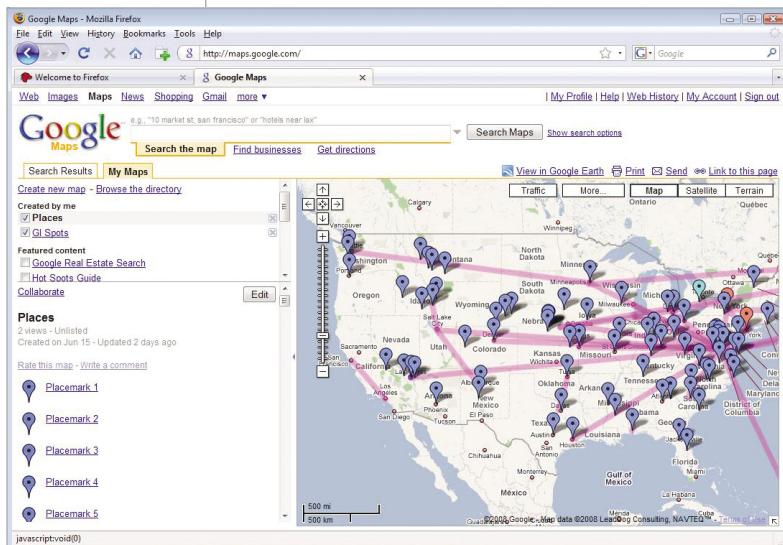
Google Maps

Beginner

Google Maps is an atlas, a Yellow Pages directory, plus dozens of other tools rolled into one. If Maps doesn't have exactly what you need, you can take a stab at creating it yourself. My Maps is the customizable section of Google Maps (maps.google.com) that lets you build your own layers of routes, placemarks, pictures, and more.

Chart Your Course

To plot out a vacation, keep track of clients, chart favorite jogging paths, or just play around, click the My Maps tab in Google Maps and then click Create New Map. Enter a name in the Title box and click the Done button, which you'll find on the right edge of the sidebar toward the middle of the screen.



The My Maps tab at Google Maps lets you build your own maps with locations, routes, and areas drawn by yourself or a group of collaborators.

Click the Edit button and four new buttons sprout up on the map screen: the same hand tool used throughout Google Maps to drag the map around; a placemark tool to pinpoint particular locations; a line tool for drawing routes or boundaries; and a shape tool to designate areas on a map.

To use one of the three drawing tools, click it and then click the map where you want the placemark to be or where you want the line or shape to start. Click OK in the detail balloon that appears. You can drag elements around later to fine-tune your map. When using the line or shape tool, each click marks the end of one segment and the beginning of the next. To end a line or shape, double-click.

To edit an element of your map, click it to see the corresponding detail balloon. Click the picture of the marker, shape, or line in the upper-right corner of the balloon, and you'll see a variety of options to adjust. Markers can be any of a large variety of icons, while shapes and lines can be different colors or widths.

Remember to click the Save button on the left side of the screen from time to time. When you're finished, or at least at a stopping point, click Done.

Scenic Route

Sharing a map with others is easy. Make sure the map you want to share is open and then click Link To This Page. An orange box appears with a link that you can copy and paste into an email. Others who click that link or paste it in their browser's Address bar will be delivered directly to your map.

The collaboration feature lets a group of people actually edit the same map rather than simply view it. To open a map for group editing, click the Collaborate link and enter email addresses of everyone you want to join the club. Customize the invitation message if you like and then click Send Invitations. Recipients who click the link emailed to them become collaborators able to edit the map.

By default, your map is public and could appear in Google search results for anyone to visit. If you don't want your map readily available, you can select the Unlisted radio button under Privacy Settings. Keeping your map "unlisted" means that the map can still be accessed by other people, but only those who happen to know the correct URL.

To find public maps made by others, enter search terms in the main Google Maps search field. At the top of the search results, you may see links to some user-created maps with blue icons rather than the standard red icons.

Map It Out

My Maps is not itself a terribly sophisticated tool, but combined with the rest of Google Maps and the collaboration made possible by the Internet, it can be a powerful way to instantly share cartographic information. ■

BY ALAN PHELPS

Intuit Quicken 2008

Print Checks

Last month, we talked about Quicken's check-writing tool. As we mentioned, once you've filled out the check information, the complete check goes into the Checks To Print list at the bottom of the Write Checks window until you print it.

This month, we'll look at how easy it is to print those checks. This feature further streamlines the bill-paying process by allowing you to create, print, and record checks from your computer. You also end up with legible, professional-looking checks that are ideal for home businesses.

Check Paper

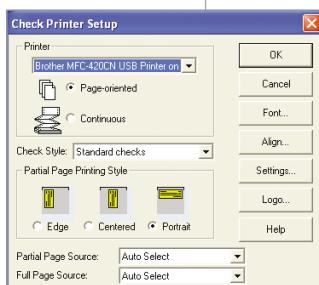
You'll need to print the checks on check stock rather than standard printer paper. There are several different styles from which to choose. The Standard Checks style of check stock prints just checks, without any voucher or stub. With the Voucher Checks style, each check comes with a similarly sized voucher form, so you can also print such information as the category, splits, and tags on the voucher. Wallet Checks come with a stub on which the transaction information is printed as the check prints.

You can order check stock from a Quicken catalog or online retailers. To access the official retail site from within Quicken, select the Cash Flow menu and Quicken Services. Then choose Order Checks & Supplies. This will take you to Quicken's Checks, Forms, And Supplies site. You can also get there by clicking Order Checks in the Write Checks window.

In Quicken. When you order checks, you'll need to decide which format to use. You can order checks for laser and inkjet printers or continuous checks for pin-feed, dot matrix printers. Most users have a laser or inkjet printer.

Setup

After selecting and buying the check paper you need, you have to tell Quicken which kind you'll be using so it can print the checks properly. You'll only need to set this up once (unless you change paper styles); Quicken remembers the settings. To begin, click the File menu and choose Printer Setup and For Printing Checks. This displays the Check Printer Setup dialog box. Here you can use the



You have to set up Quicken to work with the type of check stock and printer preferences you'll be using only once; Quicken remembers the settings after that.

drop-down boxes and radio buttons to select the printer and the type of check paper you'll be using.

If you have a laser or inkjet printer, choose the Page-oriented radio button. With this option and either the Standard or Wallet check style, you'll also choose how you want to feed the checks into the printer. In the Partial Page Printing Style section, you can select Edge, Centered, or Portrait. Edge is for putting the check in vertically against one side of the print feeder. The Centered option lets you put the check paper in vertically in the center of the feeder. With the Portrait option, the check is centered in the feeder but is positioned horizontally.

For impact or dot-matrix printers, use the Continuous option. Click the Continuous radio button and you'll see the Continuous Options section. Click the Bypass The Driver checkbox if your continuous printer skips checks or prints nothing. The Use Low Starting Position option is for continuous printers that cut the date or logo off checks.

If you use the page-oriented setup, you can print a test to see if the settings work. Click the Align button and then the Full Page Of Checks button. (You won't see this dialog box if you are using the Voucher check style.) In the next dialog box, click Print Sample. Once the sample prints, you can line it up with a check page to see if the print is where it should be. If not, you can change the Vertical or Horizontal values in the Fine Alignment dialog box. Click OK in the dialog boxes when everything looks good to accept your changes.

Printing

Once setup is complete, printing is simple. Just open the account register for the account from which you will print checks. Put the check paper in the printer and choose File and Print Checks. Or you can click the Print button in the Write Checks window. In the Select Checks To Print dialog box, enter the number of the first check to be printed in the First Check Number box. When you have finished choosing settings, click OK or Print First.

A dialog box will appear after printing to ask if printing was successful. If it was, click OK. If not, enter the number of the first check that didn't print properly and click OK. Then go to the Select Checks To Print dialog box and print again. ■

BY JENNIE SCHLUETER

Corel Paint Shop Pro Photo XI

Troubleshoot Color Issues

When you print an image from Paint Shop Pro, typically what you see on paper isn't exactly what you see on your computer monitor. Often, the colors aren't an exact match. The reason lies in color management. In theory, color management ensures that various representations of images appear the same across different media, but the representation of an image on a digital monitor and the representation of the same image on a printer typically aren't identical.

Windows color management is designed to eliminate these discrepancies. Paint Shop Pro Photo XI supports Windows color management, but your hardware or software may not be properly configured, which could lead to inaccurate color conversion. Here are some troubleshooting steps to help you get your color management back on track.

Update Your Drivers

If something isn't working, make sure you're using the most recent drivers. The same goes for color representation. If your printer driver or video card is out-of-date, your printer or monitor will not be able to communicate accurately with your PC, and this can affect image display.

Go to the manufacturer's Web site and download the most recent driver. Not sure what video card you're using? In

Windows XP, right-click the Desktop and select Properties from the context menu. On the Settings tab of the Display Properties dialog box, you'll see the video card make and model in the Display drop-down menu. (In Windows Vista, right-click the Desktop and select Personalize. Click Display Settings to find the video card make and model.) Once your drivers are updated, try printing the image again. If this hasn't done the trick, it's time for the next step.

Create A Monitor Profile

It used to be that you had to spend big bucks to calibrate a monitor, but now there's a tool within PSP Photo XI that can help most users. Calibrating your monitor is an important step in

achieving accurate color management, and we recommend you try this once you have ensured you're using the most up-to-date drivers.

From the File menu, select Color Management and Monitor Calibration. The seven-step dialog box walks you through optimizing your monitor's characteristics, including contrast, brightness, color, and tint controls.

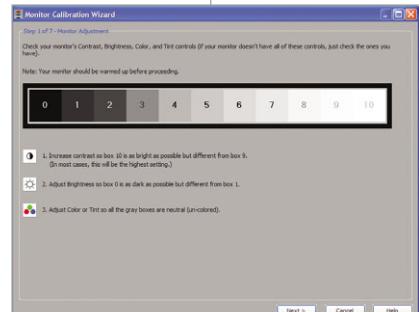
(NOTE: You will need to know how to work your monitor's on-screen display controls to maximize this tool's usefulness. If you don't know how, or if the monitor doesn't allow you control over all these characteristics, the wizard still lets you adjust key features on all but the first page. Be sure to select the Advanced Options checkbox on subsequent pages to calibrate red, green, and blue tones.)

When you reach the final page of the wizard, in the File Name box, enter the desired name of your monitor profile. Leave the Enable Color Management checkbox selected and click Finish. Restart your PC and try printing the image again.

Disable (Or Re-Enable) Color Management

By default, the color management feature is enabled in PSP Photo XI, and it takes into account your monitor and printer profiles. If these profiles are corrupt, however, the images may display or print incorrectly. Or, you may be using a tool that the software isn't designed to handle properly. For example, users have reported that when they take screen shots using a Windows built-in tool (CTRL-PRINT SCREEN), the colors appear distorted when the screen shot is copied into PSP Photo XI.

In this case, your best option may be to turn off color management. Select File, click Color Management, and click Color Management again. Deselect the Enable Color Management checkbox and click OK. Reboot and compare the monitor vs. the printer image again. If they now match, a likely culprit may have been an improper monitor or printer profile. Or, you may find when visiting the Color Management dialog box that color management wasn't selected in the first place. If that's the case, select the Enable Color Management checkbox and select Basic Color Management. From the Rendering Intent drop-down menu, make sure Pictures is chosen and click OK. ■



The Monitor Calibration Wizard helps ensure your monitor colors are as accurate as possible.

BY HEIDI V. ANDERSON

Microsoft Excel 2007

Troubleshoot Filtering

Spreadsheet Advanced 2007 for WinXP/Vista

This month, we'll cover solutions to potential issues involving filtering. When you sort data, you're rearranging it by criteria such as highest to lowest. Everything in a sorted set of data shifts around, but it all still appears. Filtering, however, temporarily hides data that doesn't fit your filtering criteria. Filter for salespeople who made the quota, for example, and Excel will hide any salespeople who missed the target number. Then you can work with only the filtered data with operations such as printing, searching, and more.

When you're ready to start filtering, go to the Home tab's Editing group and click the Sort & Filter button. If you run into any problems, check out the following solutions.

Why does my filter seem to be taking out more data than it should? I'm trying to filter out sales below \$1,000, but I know I'm missing some figures that exceed that.

Check whether you have another filter in place. Filters build on each other, reducing the visible data. Let's say, for example, that you've already filtered one column to hide all sales that occurred before August 1. Even if a sale on July 30 exceeded by the first filter.

I want to filter a column by text in the cells, but when I click the arrow button at the top of the column, the drop-down list shows only an option for Number Filters.

You probably have a mix of data types in the column, such as some cells formatted as text and some formatted as numbers. Excel filters act on only one type of data, and they default to the format most common in your selected column. Filtering also works with cells containing times, but you see that option only on columns filled with mostly times.

I know I filtered a block of data, but I can't remember the criteria I used.

On filtered columns, the arrow button at the top of the column includes a small funnel image. Rest your mouse pointer over the button for a pop-up label that shows the sort criteria in effect.

What's the fastest way to filter a huge list of sales transactions to hide everything except sales involving our Gizmonator 2008 product?

Click the filter arrow at the top of the column that includes the name of the product in each transaction. The main section of the drop-down list lists every text value that appears at least once in the column. To instantly filter out anything except cells containing a single target value, click the box beside the Select All button to deselect all the values. Then scroll down to the one you want to sort by, click the box beside it, and click OK.

When I performed a filter operation, one of my charts lost most of its data. What's going on?

Excel's charts can't see data when it's filtered out. In some cases, that could leave a chart almost unreadable, or at least not very informative. But as soon as you remove the filter, the chart will pop back into shape.

This is probably a good time to ask a dumb question: How *do* I remove a filter?

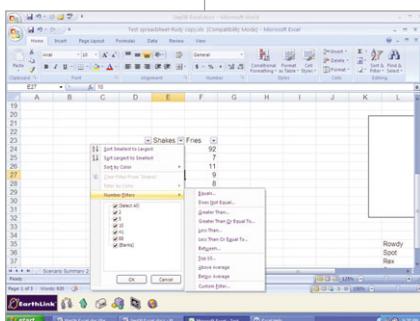
It's easy. Just click the funnel/arrow button at the top of the column and choose Clear Filter From (*Column Name*).

My filter is set to hide figures below \$10,000. But even after I just edited a cell's number to be below that mark, it's still visible.

The filter is still in effect, but you have to reapply it to account for the updated data. Click anywhere in the worksheet and then go to the Data tab's Sort & Filter section and click Reapply.

I'm looking for a way filtering can help me watch upcoming project deadlines.

While Excel isn't a true project-management program, its filters can help you see the day's jobs each morning when you open the workbook. Set this up by filtering deadline dates with criteria such as Today, Tomorrow, and Next Week. (These options will be available in the filter drop-down list of a column containing mostly dates.) If you leave the filter in place, it changes the filtered data accordingly when the date changes. So when you open the workbook on a new day (or week or month), you'll see different information in the data table. 



When you need a quick way to review only certain data (such as all sales of 10 units or less), try adding a filter.

Microsoft PowerPoint 2007

Create Custom Shows

Presentation
Advanced
2007 for
WinXP/Vista

Leverage. Repurpose. Write once/use many. Whichever business buzzword you apply, the idea of preparing one core piece of content that works in several situations always sounds like a good idea. Information contained in PowerPoint slides is a resource you can constantly redeploy in different settings, and we're not talking just about moving slides among presentations. We're talking about entire presentations that serve different audiences with no alteration. The secret is setting up custom shows as subsets of an overall presentation.

Before getting into the details, let's consider when custom shows are most useful. Let's say you need to present the company's new benefits packages to all employees. Because you have offices in two different states, the tax ramifications vary a bit for the two groups. With a custom show, you can create a single PowerPoint presentation that includes all the slides you'll need for both groups. While all employees get to see most of the slides, you can create a custom show that presents slides 10 through 12 and slide 30 only to the New York employees, while hiding slides 13 through 17 and slide 31. The custom show for the Pennsylvania employees shows the opposite mix.

Fancier custom shows include hyperlinks that let you jump to specific sections as needed. Perhaps you're unsure whether an audience will be more interested in the topic of photo manipulation or graphic design. You could create sections of your custom show on each topic, with links on slide 2 leading to the appropriate collections of slides. When you know what topic to pursue, click the appropriate link.

Create custom shows when you want to show two audiences different parts of the same presentation.

Create & Run Custom Shows

Custom shows are built around existing presentations, so you'll need a handful of slides before starting. With those in place, head to the Slide Show tab and click Custom Slide Show, Custom Shows, and then New. The Define Custom Show box shows all the slides in your presentation. To pick the subset of slides that will become part of the custom show, click a slide number and then Add. You'll see its title appear in the box on the right. To

select multiple slides at once, click their titles while holding down the CTRL key.

Once you've placed slides on the custom show list, you can change their order using the Up and Down arrows on the dialog box's right side. Once all the slides are arranged as you like them, give the custom show a name in the box at the top of the dialog box and click OK. You can create as many custom shows as you'd like by repeating this process.

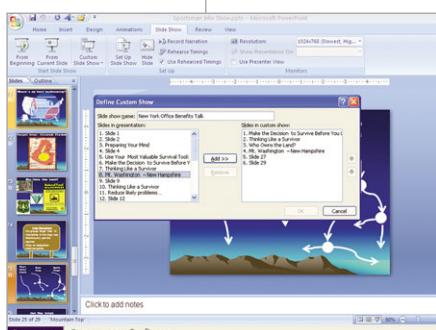
To run your custom show, click the Custom Slide Show button on the Slide Show tab again. This time, the names of shows you created will appear below the button. Click the name of one to start the show.

Hyperlink To Custom Shows

With custom shows set up, it's easy to create hyperlinks to them. Navigate to the slide with the objects you'll use as the clickable links. (You may want to create a new slide with text added just for this purpose.) Highlight the text/object that will link to a specific custom show, go to the Insert tab's Links section, and click Hyperlink. In the bar on the left side, click Place In This Document. Scroll down through the list of slides to the bottom, where you'll find the names of custom shows you've created. Click the custom show to which you're linking, and click OK. Now the selected text/object is a clickable link that leaps to the first slide of the custom show.

Emergency "Custom" Shows

There's one more on-the-fly method for creating something similar to a custom show. It's handy if, let's say, you're about to discuss the new benefits package and someone tells you most of the group you're about to speak to is ineligible for the bonus program. You don't have time to set up a custom show, but you can quickly hide the slides referring to bonuses. Just right-click the slides in the Slides tab on the left side of the PowerPoint screen and choose Hide Slide. Now they won't appear when you run the show. To restore the slides, right-click them again in the Slides tab and select Hide Slide again. **II**



Create custom shows when you want to show two audiences different parts of the same presentation.

BY TREVOR MEERS

Quick Tips

Secrets For Succeeding In Common Tasks

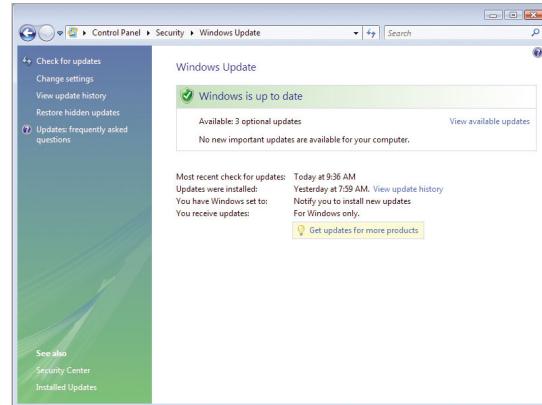
BY STEPHEN J. BIGELOW

Windows Update

Question: How do I check for Windows updates using Windows Vista?

Answer: Vista's Windows Update capability is very similar to that of Windows XP. Click Start, select Control Panel, and then click the Check For Updates entry under Security. Vista will automatically check for new updates. If there are new updates available, you can download any important (or optional) updates.

To change the way that Vista handles updates, click the Change Settings entry in the left menu. You can opt to download and install updates automatically, download and install them manually, or take no automatic action. Automatic Updates is often the best approach for users who want to have the most up-to-date system without having to do any work. However, one of the drawbacks to using Automatic



Configure Windows Vista to download and install Windows updates according to your specific preferences.

Updates is potential disruption to your PC. Large downloads can bite into your Internet bandwidth, and the actual installation can require a reboot.

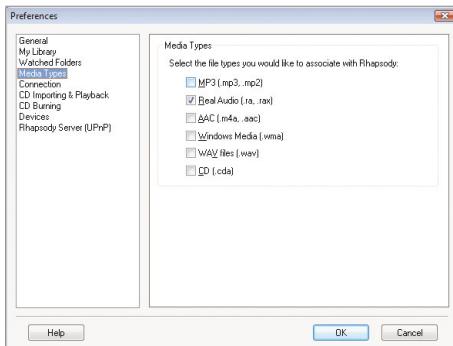
Antivirus

Question: Should I cancel my current antivirus utility in favor of the free utility offered through my ISP (Internet service provider)?

Answer: A growing number of regional ISPs are providing their subscribers with free security software. For example, Charter Communications and Comcast are two ISPs that provide such an offer for their high-speed Internet customers. Simply download the software, receive a registration key, uninstall your existing security software, and install the new version. You can use the new security software for as long as you're a customer with the ISP.

It's worth noting that free security software typically doesn't include all of the high-end bells and whistles offered with fee-based security software, but you can expect about the same amount of protection from the firewall, antivirus, antispyware, and intrusion prevention tools included with any security software. Considering that fee-based security software can cost about \$50 or more per year for an initial purchase—and just about as much for each following year in subscription renewals—it usually makes good financial sense to leverage your ISP's offer.

Rhapsody



Configure Rhapsody to play preferred file types such as MP3 or RealAudio.

Question: How can I make Rhapsody the preferred media player for my MP3 library?

Answer: Start Rhapsody, select Tools, click Preferences, and select Media Types from the left menu. Next, choose from the list of available file types that you'd like to associate with Rhapsody. For example, select the MP3 checkbox to make Rhapsody the default player for your MP3 files. If you find that Rhapsody is now playing some other file types that used to play automatically in Windows Media Player or other players, simply deselect any file types that you want Rhapsody to avoid and click OK to save your changes.

Laptop Batteries

Question: Is it safe to swap a laptop battery while the unit is running?

Answer: In general, you can swap the main battery pack anytime that the laptop is running from its AC adapter—the battery isn't powering the laptop. When the laptop is actually running from its battery, don't remove the battery unless you turn the laptop off first or put it into Hibernate

(not Standby) mode. A few laptop models may incorporate a secondary internal battery that can keep the unit running for a minute or two so that you can swap batteries without powering down the system, but you first need to verify that your laptop supports such a feature; otherwise, you may crash the system and lose data. In every case, you should always refer to the documentation that accompanies your specific laptop for detailed battery-swapping guidelines and restrictions.

Security Software



Configure your security software to perform periodic full-system scans when it's convenient.

Question: How often should I check my PC for spyware or viruses? Do I regularly need to run full-system scans?

Answer: This question comes up a lot, but it's really a moot point—security software (including antivirus, anti-spam, intrusion detection, and other bundled features) is almost always configured to load when the computer starts and then run full-time in the background. Once loaded, the security software will check for updates, monitor Internet traffic, scan emails, block Web content, and take other actions to prevent exploits or malicious code from affecting your system. You really don't need to worry about routine manual scanning because the system is monitored all the time anyway.

However, security software still supports full scans on a regular schedule. Some tools, such as Norton Internet Security, simply perform weekly scans by default. Other tools, such as F-Secure Internet Security, provide complete scheduling flexibility, allowing you to set up daily, weekly, or monthly scans. Remember that scanning can be hard drive-intensive, causing a hit to the PC's performance, so be sure to configure scans for idle times when you're not working or playing games.

IP Addresses

Question: Because networks assign IP (Internet Protocol) addresses automatically, why is there even an option for manually assigning IP addresses? When would I ever set an IP address manually?

Answer: DHCP (Dynamic Host Configuration Protocol) has gone a long way toward simplifying network management. The DHCP server feature of your broadband router (or numerous other network devices) can identify the PCs on your network and assign IP addresses without you ever touching a thing. But, dynamic IP assignments are only temporary. Dynamic addresses are assigned and relinquished periodically. While a device will often receive the same IP address when its old IP "lease" expires, there's no guarantee—DHCP can (and sometimes does) change a device's IP address.

Static IP addressing is still an important networking feature that people use to configure devices where the IP address should never change, such as for your printer server or network storage device. When network users configure the IP address range managed by DHCP, they only allocate a portion of the IP addresses within the subnet, leaving the remainder of unmanaged IP addresses available for static assignment. For example, suppose you install a broadband router at the default address of 192.168.0.0. You might configure the DHCP feature to manage addresses 192.168.0.100 to 192.168.0.255. PCs configured to receive automatic IP addresses would receive an address in this range. This would also leave addresses 192.168.0.1 to 192.168.0.99 unmanaged and available for static devices.

Global Positioning Systems

What It Is

A GPS (global positioning system) device helps you find a location or elevation, plot a course of travel, and more using information gathered from a set of satellites that orbit Earth. GPS devices are commonly found in cars as navigational aids. In-car models feature bright, easy-to-read user interfaces and usually come packed with maps, POIs (points of interest), and the ability to program waypoints (saved coordinates of locations that the device “remembers” so you can backtrack to them easily). Many handheld models are smaller and lighter, intended for use on foot.

The difference among GPS devices lies not with the technology inside, but primarily with the form factor and extra features. Accordingly, when someone refers to “a GPS,” what he is actually referring to, whether he knows it or not, is the GPS receiver inside the device that does all the work. Specific devices have different features and software, but at their core they all have a GPS receiver. GPS receivers are computer chips that receive radio signals from the satellites zipping overhead in space and supply data to the user via the device’s interface.

More Than Just Directions

Most people are somewhat familiar with GPS devices as they relate to driving directions in the car. However, GPS goes far beyond just telling you to where to go.

GPS devices aren’t limited to vehicle travel; most in-car GPS devices can be removed so you can carry them around with you. This also allows you to use the device in different vehicles.

Other GPS devices are handheld, designed to be portable for use on the trail or in rough terrain. Sometimes called PNDs (personal navigation devices), handhelds eschew the large, bright screens and boxy form factor (which are ideal features for an in-car GPS device) in favor of sturdy cases, waterproof designs, and hiker-friendly sizes.

Enterprising people have leveraged GPS technology as a stolen merchandise-locator; for recreational activities, such as geocaching (using GPS coordinates to locate hidden objects); and for adding location details to two-way radio communications.



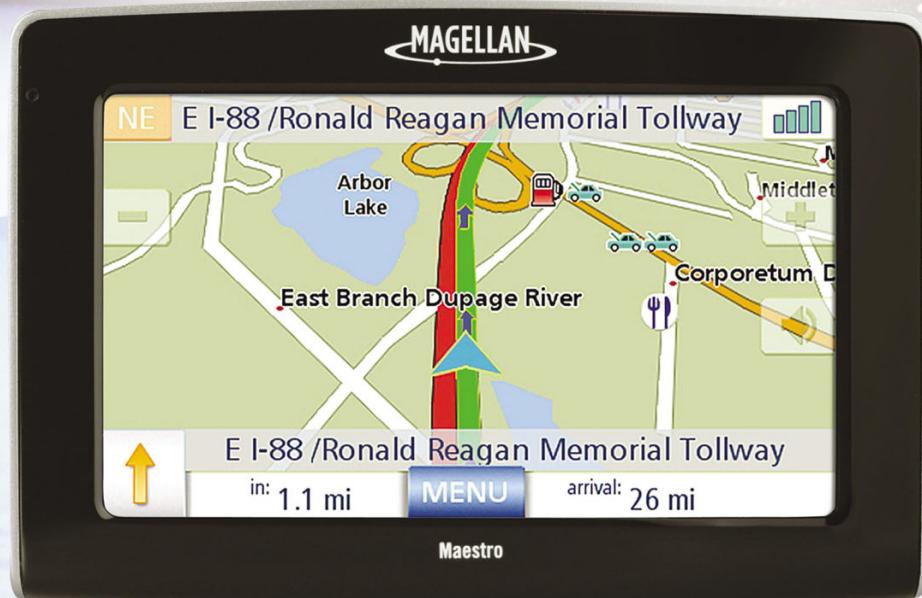
How It Works

In the 1980s, then-president Ronald Reagan opened the NAVSTAR satellite system, previously used exclusively by the military, to the general public. During the Gulf War in the early '90s, civilian use was partially restricted. In 2000, Selective Availability was deactivated, and civilians gained greater and more accurate GPS functionality.

The system is comprised of 24 satellites that orbit Earth at approximately 11,000 miles up. At any given time, about six of these satellites will be "visible" to your GPS receiver, although it only needs three to determine location. Having more than three satellites is beneficial, as it aids in accuracy and also increases the odds that a GPS receiver will be able to get a signal when located in heavy cover or in valleys. The receiver receives signals from the available satellites constantly to keep track of its location—and subsequently your position—on the planet.

This process is called **trilateration**. When the GPS receives signals from a satellite, it determines their distance apart by measuring the time it takes for the radio signal to reach its destination. When the GPS performs the same operation for multiple satellites, it can determine its terrestrial location.

Think of each satellite as being surrounded by a huge sphere with a radius equal to the distance between it and your GPS device. If there are three satellites in range of your GPS device, each sphere intersects the others at specific points. Because you're looking for a specific location (where you're standing), the GPS eliminates all points where the spheres do *not* intersect. Using Earth as a fourth sphere and the GPS' location as a constant, the device can accurately trilaterate its position. Once the GPS knows its own location, it can plot courses to other locations, continuously gathering data from satellites as you move.



In-car GPS devices, such as the Magellan Maestro 4250 (\$499.99; www.magellangps.com), have large, bright screens and voice control.

WHAT TO DO WHEN . . .

Someone Breaks Into Your Network

Home networks make it easy to share Internet connections, printers, hard drives, and other peripherals. But they might also present a target for outsiders with another agenda. If you think someone might have infiltrated your network, here's what you might see—and what you should do about it.

Beware Of Leeches

We'll concentrate on wireless networks, which in their open state are by far the easiest to hack. If you don't use a wireless router on your network, breaking in is a more involved process. Unauthorized Internet traffic on a wired network is more likely due to malware surreptitiously installed on your own machine, intent on sending spam or personal information out the front door. The best option in that case is a good antivirus package and, probably, a reformat and clean operating system install.

Not every wireless network intrusion means someone is trying to steal from you or take over your computer. In fact, most unauthorized network connections are really just neighbors or passers-by looking for free Internet access through an unsecured wireless connection. This sort of "leeching" is fairly common, and while it could slow down your Internet connection, it doesn't usually cause lasting harm. Undoubtedly, many people unfamiliar with the ways of Wi-Fi probably use someone else's wireless connection without knowing it—they might think they're connected to their own wireless router, but in reality they're connected to the one next door.

Just because most leeches aren't trying to root around your computer doesn't mean that you should keep your network vulnerable. Some people do have malicious motives, after all.

Sniffin' Out Intruders

You might first notice someone using your wireless connection by way of slow downloads or perhaps activity lights on your router or modem blinking when you're not using the network yourself. You can quickly confirm any suspicions by opening up your router settings screens and checking to see who is connected to your network. Usually, you can access router settings through your browser by entering <http://192.168.0.1> in your Address bar. If that doesn't work, check your router manual for instructions.



You should be able to find a screen somewhere in the router configuration settings that lists all devices connected to your router by MAC (Media Access Control) address, the unique numbers by which network devices are known. To figure out if any MAC addresses don't belong, you'll first need to know which ones do belong. To find your MAC address in Windows Vista, type `cmd` in the Start Search box. (In Windows XP, choose Run in the Start menu and then type `cmd`.) Next, type `ipconfig /all` including the space and press ENTER. The Physical Address listed in the readout is your MAC address. You can also switch off various devices in turn and look to see which address disappears from the list on the router screen. Don't forget any of your devices—TiVos, network hard drives, printers, and other devices around the home or office that might be connected to the network. (Make a note of the MAC addresses of your devices so you can, if possible, add them to a list of allowed addresses on your router later.) If you exhaust your own network-connected gadgets but still can't account for one of the MAC addresses listed by your router, you might have a leech on your hands.

You might also check your router's log files, which will be available from the configuration screens, as well. Exactly what you'll see there depends on your router, but you should be able to see different devices connecting and disconnecting from the network. Even if the intruder isn't currently using your bandwidth, a

strange MAC address might show up here.

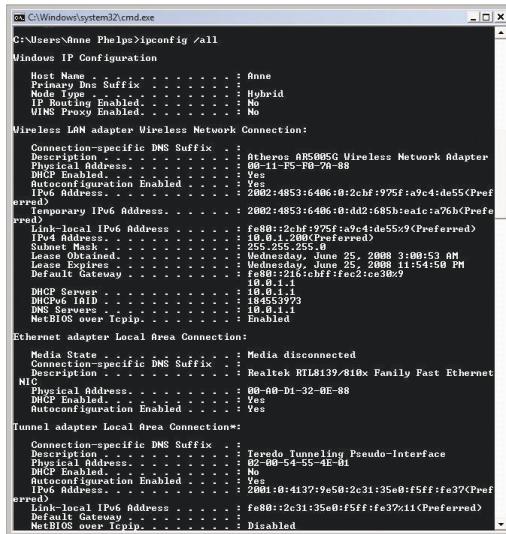
A true network attack, where someone wants to do more than simply use your Internet connection, should set off some alarm bells on your personal firewall—assuming you have one installed. Most firewalls, such as the popular ZoneAlarm (\$29.95; www.zonealarm.com), alert you when a program is attempting to reach your computer from the outside or if a new program on your computer is attempting to reach the Internet. Read the firewall documentation to sort out which alerts you can ignore and which mean trouble.

Seal The Breach

Once you see some indication of a network breach, immediately open up the router configuration screen and start securing the network as described below. If a hacker has locked you out by changing your own router's password (an easy thing to do if you never changed the password away from the original default), you can regain control by unplugging the router and hitting the reset button, which usually requires pushing the end of a paper clip or similar tool into a small hole until you feel or hear a tiny click. This resets all of the router's settings (be aware that you'll have to go back in and reconfigure settings) and restores the password to the factory default. That password (often "admin" or "password") should be in the router manual.

After you've changed the router password, change the wireless connection password. Most routers offer different types of password security; WPA/WPA2 (Wi-Fi Protected Access/Wi-Fi Protected Access 2) is generally more secure than WEP (Wired Equivalent Privacy), and should be used, if possible.

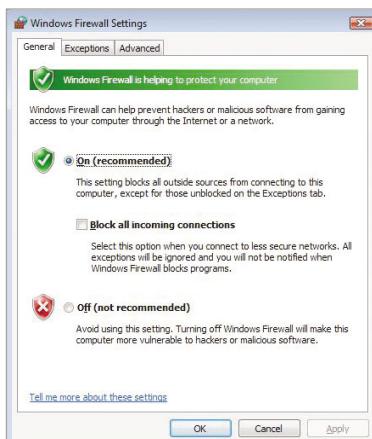
Next, change the SSID (Service Set Identifier), which is the name of your



You can find out your computer's IP (Internet Protocol) and MAC addresses from the command-line screen and then compare it to what you see in your router settings.

network. It doesn't matter what name you pick, but something random is more secure. You should also disable broadcasting of the SSID in your router's settings. This will prevent your network from showing up to most outside users looking for networks in the area.

You'll need to configure your own PC to look for the network name you just chose. To do this in WinXP,



Make sure Windows Firewall (or a third-party firewall) is turned on; it should notify you if malware or a hacker is attempting to secretly send information through your Internet connection.

click your Wireless Network Connection icon, Change Advanced Settings, and the Wireless Networks tab. Next click Add and enter your network information. In Vista, click Start, Connect To, Set Up A Connection Or Network, and Manually Connect To A Wireless Network, and then enter the required info.

If you have the option, you should also set your router to use MAC filtering. You'll need to enter the MAC addresses of your network devices in the list of allowed addresses. Connections to any devices not on the list will be refused. Then restart the router to kick off everyone who isn't supposed to be there.

Finally, you should install or enable a software firewall for each computer connected to your network if you haven't already, along with antivirus software. To enable the firewall included in Vista, click Start and type **firewall** in the Start Search field. Click Windows Firewall, and if the windows indicates the firewall is turned off, click Change Settings and then enable the firewall. In WinXP, click Start, Control Panel, Network And Internet Connections, and Windows Firewall and then enable the Windows Firewall.

Layer Protection

None of these steps completely close off all possibility of someone hacking into your network, but each one makes it that much more difficult. Even a dedicated hacker is unlikely to go to the substantial work of defeating a strong password when so many other machines out there lack any protection at all. Even fewer will attempt to defeat multiple layers of protection. For all practical purposes, your network should be safe. ■

BY ANNE STEYER PHELPS

Backups & Data Recovery

We all know how important it is to clean out our computers to keep them running smoothly. It's just as important to back up your computer. Think about all of the important information sitting on your computer: the pictures of your grandson's baseball game, your tax records and other financial information from the past five years, and all of the music you spent hours downloading. Now, imagine all of that information disappearing. Scary, huh? Backing up your system can prevent future problems and will most definitely save you a lot of time and stress.

Find all the backup information you need in SmartComputing.com's Tech Support Center. The Backups & Data Recovery section is full of articles about how to back up your system and how to recover valuable information. The articles cover basic computing language, the tools you'll need to back up your system, and how to avoid losing data. Check out these great articles in the Tech Support Center at SmartComputing.com today!

1. Go to SmartComputing.com and click the Tech Support Center link.
2. Click the Backups & Data Recovery link.
3. Click View ALL Backup & Data Recovery Articles to browse or search articles and find all the backup information you need. Subscribers, be sure to log in so you can add the articles to your Personal Library.



The screenshot shows the SmartComputing.com Tech Support Center. The main menu includes links for Home, Tech Support, Q&A Board, Article Search, and Subscribe & Shop. The Tech Support Center sidebar lists categories like Error Messages, Solutions Knowledgebase, Basic Troubleshooting Articles, Security & Privacy, How To Get Rid Of, Backups & Data Recovery (which is circled in red), Preventive & Regular Maintenance, Networking & Communications, Articles On How To Install, Just About Anything, Driver Education, and Other Helpful Tech Support Tools. The main content area features a search bar for 'Search The Tech Support Center', a 'How To Use This Search' tip, and a 'Backups & Data Recovery' section with a sample article list and a 'View ALL Backup & Data Recovery Articles' button (also circled in red). Below this is a 'Preventive & Regular Maintenance' section with a sample article.

From *Smart Computing's* Dictionary

router

The part of a communications network that receives transmissions (information) and forwards them to their destinations using the shortest route available. Data may travel through multiple routers on the way to its destination.

HDTV Sales

According to Frank N. Magid Associates, a whopping 5.5 million households brought home an HDTV during last year's Super Bowl and holiday season. Retailers hope for similar sales in the upcoming months.



Get Connected

As more and more people live in multi-PC homes, networking has become a part of day-to-day life. Stay connected by browsing the Networking & Communications section of the *Smart Computing* Tech Support Center.



Networking & Communications

Red X

Is that mysterious red X still popping up on Web pages? Check out the Top Subjects in our Tech Support Center to discover how to get rid of the pesky thing.

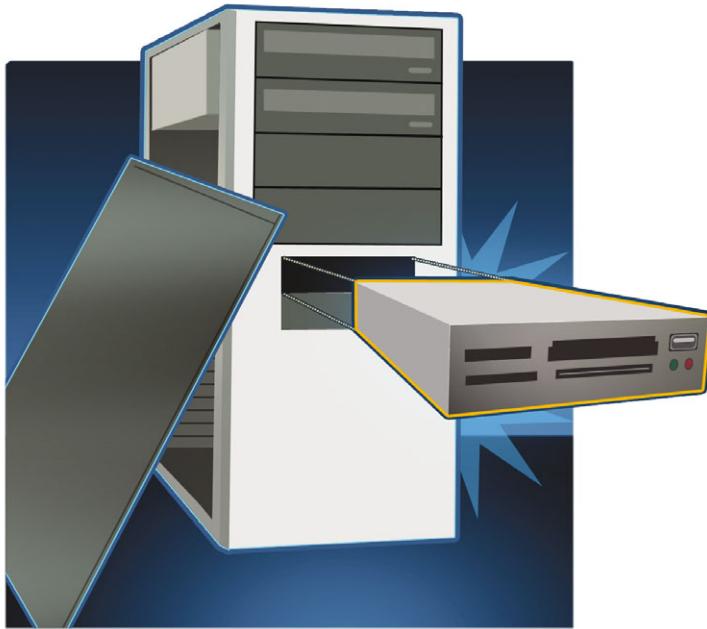
Top Subjects

1. [Red X](#)
2. [Safe Mode](#)
3. [Hard Drive](#)
4. [Startup Menu](#)
5. [Outlook Express](#)



How To Install . . .

A Memory Card Reader



Flash memory cards are everywhere, it seems. Besides being the primary storage units of digital cameras everywhere, memory cards have tipped up as data repositories in flash-based camcorders, smartphones, and portable media players.

Because they're tiny, tough, and spacious, memory cards have become ubiquitous. In fact, they're so popular, their use has spread to output and imaging devices. If you want to view the photos on a card, for example, insert it into a digital photo frame. If you want a hard copy, slide the card into a photo printer.

If you've bought any portable electronics made in the last half-decade or so, you probably own at least one type of flash memory card. And although you can hook up your digital camera and most other card-carrying devices to your PC to transfer photos, music, and other content, you might prefer to be able to pop out a memory card and pop it into your computer.

For this, you need a memory card reader. Actually, a reader would more accurately be called a reader/writer or a drive, as it can not only read files from a card, but save files to it, too. Consumer models range from about \$15 to \$40.

How To Buy

Unfortunately, instead of two or three memory card formats supplanting the rest, there's a score of card types on the market—with more being invented every year. So, before you shop, ascertain your memory card needs. Check the manuals of your relevant devices and jot down the types of cards each supports. Even some HDTVs come with memory card slots for impromptu photo slideshows, so make sure you canvass *all* of your electronics.

In this world of ever-changing electronics, don't be tempted to save a few bucks by buying a reader that only

covers the basic formats you currently use. Even if you don't own a particular kind of memory card supported by one of your devices, you might someday. You might need to buy a card while you're on vacation and faced with a limited selection of formats, or you might discover that your new camera supports a faster or more spacious type of card than your last digicam used.

Next, decide whether you want to simply add an external card reader to your PC or install an internal unit. Both are easy upgrades, although the external route is drop-dead simple. For an internal reader, you'll need a spare 5.25-inch (CD/DVD drive-sized) or 3.5-inch (floppy drive-sized) drive bay.

Now you're ready to shop. When you find a reader that's a likely candidate, check its list of supported memory cards for the *specific* formats you own. Don't assume that because a reader supports Memory Stick, for instance, it will automatically support the Memory Stick PRO Duo in your camcorder.



An external media card reader, such as the Hi-Speed USB 2.0 15-in-1 Media Reader & Writer from Belkin (\$39.99; www.belkin.com), offers the easiest way to add memory card slots to your PC.

That said, if you can't find a suitable reader with support for an out-of-the-ordinary format, you might be able to buy an inexpensive adapter to convert the card to fit a more common format's slot. Alternatively, you might be able to connect the troublesome memory card's device to your PC via cable.

How To Install

The easiest way to add a card reader to your PC is to buy an external model

and connect it by USB. If the reader comes with drivers for your operating system (Windows XP and Vista automatically assign drivers for memory card readers) or software on a disc, follow the manufacturer's instructions

as to whether to install them before or after you physically plug the reader into a USB port.

To install an internal card reader, turn off your PC, unplug its power cord, and ground yourself by

touching an unpainted metal portion of the PC's case. Next, remove both side panels from the computer case, as well as the fascia from the front. If you bought your PC preassembled, you might need to check the users manual for directions on how to detach each outer panel.

Next, follow the memory card reader's instructions to attach its cable(s), if it's not already connected. It's best to do this before you physically install the reader into your computer, as it may be too cramped inside the drive bay to do it afterward.

If the computer case's fascia has a plastic plate in front of the drive bay you plan to use, pop it out. If your case has a metal punchout plate in the bay itself, carefully use a sturdy standard screwdriver to pry it out. Watch out for any sharp edges left behind.

Next, feed the reader's interior cable(s) through the opening of the drive bay, and let it dangle inside the PC. Slide the media card reader into the bay. Line up the bay's mounting holes with those of the card reader and then use the included screws to hold the reader loosely in place. Nudge the reader backward or forward until its front panel is even with that of your PC's optical drive, or until it's flush with the computer case's fascia when installed. Tighten down the screws to lock the card reader in place.

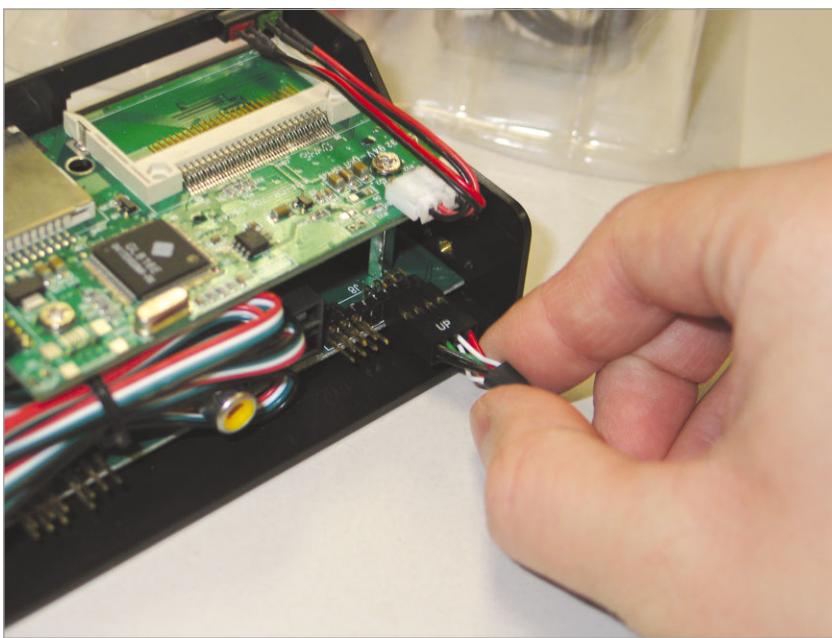
Now look through your PC's users manual or your motherboard's manual for a labeled map of the headers (pin connectors) on the board. The motherboard itself might be labeled with silkscreened descriptions next to its ports and headers, but many aren't.

Many simple internal card readers connect to a 9-pin USB header inside the PC. These headers have two rows of metal pins; one row has four pins, and the other, five. If you can't locate an unused USB header on your motherboard, you might be able to free one up by disconnecting some unused front- or top-mounted USB ports.

Other readers include a USB cable that you are supposed to route



This internal card reader takes the "kitchen sink" approach, packing in many more features than just memory card slots.



It would probably be difficult to attach an internal card reader's cables after you install it in your PC, so connect them beforehand.

through an expansion card slot and plug into a rear USB port. If this describes your scenario, find a bracket on the back of your PC that isn't part of any existing expansion cards, and remove the screw that holds it in

place. Install the card reader's included bracket in its place and then screw it down. Thread the USB cable through the hole in the bracket and insert any rubber grommets that came with the reader kit. Finally,

connect the cable to an unused port on the back of the PC and slide the slack into the computer case.

Some media card readers pack a lot of extra features into a single drive bay. These may have additional ports, such as FireWire (also called IEEE 1394) or audio jacks that connect to other headers or rear ports on the motherboard. You only need to hook up the ports and jacks you plan to use, but remember that every feature you enable makes your PC that much more versatile.

Finally, reconnect your PC's power cable, and start the computer. Wait a few minutes for Windows to detect your new card reader. If the manufacturer directs you to install any drivers for your OS (operating system, such as WinXP), do it now. It's up to you whether to install any software included with your new card reader, as some bundled applications aren't exactly necessary.

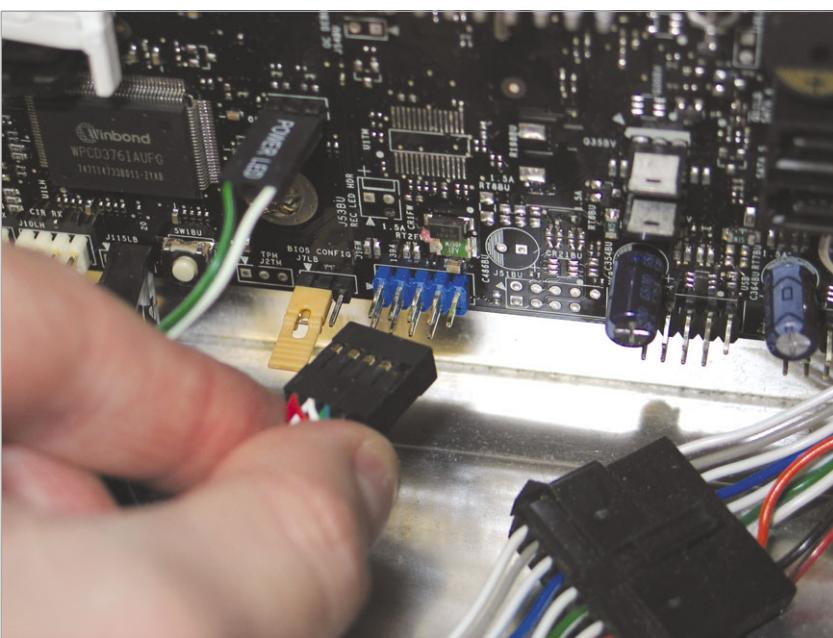
Avoid Memory Loss

After the installation, try out your new reader with some memory cards from your digital camera and other devices. The reader should show up with one or more drive letters (such as E: or F:) in Windows Explorer. Make sure that the unit is at least able to show you a list of the files stored on each card you try. (Your PC may not be able to open every file type if it doesn't have a suitable application for each, but that's a separate issue that doesn't necessarily indicate that your reader isn't working.)

And one final bit of advice: Before you eject any memory card from your new reader, click the Safely Remove Hardware icon near the clock and then the name of the card. Wait for Windows to tell you it's OK to eject the card or pull it out. If you do this, you'll avoid scads of preventable problems stemming from data loss or corruption. ■



Before you tighten down your internal card reader's mounting screws, make sure that it's reasonably level with your optical drive and/or drive bay covers.



Most memory card readers connect to either a USB header on the motherboard (shown here) or a USB port on the rear of the PC.

BY MARTY SEMS

EXAMINING ERRORS

COMPILED BY THE SMART COMPUTING STAFF

Error: After logging on to the Internet, you get a message telling you something is wrong with LEXPLORE, and the system has to shut down.

Translation: According to multiple sources, including Symantec, LEXPLORE is a byproduct of the Sodabot worm (or W32.HLLW.Sodabot), which gives hackers a back door to infected systems and can negatively affect system performance. The worm is known to spread via file-sharing networks and IRC (Internet Relay Chat) and will copy itself to the C:\WINDOWS\SYSTEM32 folder as the file %System%\LEXPLORE.exe. The

spelling of “LEXPLORE” is an attempt to confuse users into thinking the file legitimately has something to do with Internet Explorer.

Solution: Running antivirus or malware software with current definitions should remove the worm. According to Symantec, users of its antivirus products should first update their antivirus program's definitions and then restart the computer in Safe Mode. In Safe Mode, Symantec instructs to run a full scan and delete any files detected as W32.HLLW.Sodabot. Additionally, users are instructed to delete the value WINDWS CONFIGURATION

LOADER C:\%System%\LEXPLORE.exe from the following Registry keys:

HKEY_LOCAL_MACHINE\SOFTWARE\MICROSOFT\WINDOWS\CURRENTVERSION\RunHKEY_LOCAL_MACHINE\SOFTWARE\MICROSOFT\WINDOWS\CURRENTVERSION\RunServices

To access the Registry, click Start and Run. In the dialog box, type `regedit` and click OK. Navigate to the keys listed above and in the right pane for each key, delete the value WINDWS CONFIGURATION LOADER C:\%System%\LEXPLORE.exe. Close Registry Editor to exit.

Error: This software cannot be installed because JScript is not properly registered. Please repair JScript and then restart the installer.

Translation: You may see this error message when you try to install Adobe Creative Suite 3 or a standalone Creative Suite 3 application in Windows Vista. This error occurs because a file relating to JScript is not registered correctly within the operating system.

Solution: To resolve the error, Adobe recommends manually registering the `jscript.dll` file. To do this, click Start, All Programs, and Accessories. Next, right-click Command Prompt and select Run As Administrator. If necessary, click Continue within the User Account Control dialog box. Next, type `cd c:\windows\system32` if your com-

puter is running Windows Vista 32-bit, or type `cd c:\windows\syswow64` if your computer is running Windows Vista 64-bit. At the prompt, type `regsvr32 jscript.dll` and then press Enter. When you see a dialog box that

reads, “`DllRegisterServer in jscript.dll succeeded`,” click OK. The problem should now be resolved. Attempt to install Adobe Creative Suite 3 or a standalone Creative Suite 3 application again.



Error: No connection to the internet is currently available. To view internet content that has been saved on your computer, check Work Offline. Click Try Again to attempt to connect. (You are given the option to work offline or try again.)

Translation: Your computer may not recognize an Internet connection

so you are being prompted to work offline. You might receive this error message when you open Internet Explorer or Outlook Express.

Solution: This dialog box indicates that there is a problem connecting to the Internet. By the time you click Try Again, the Internet connection may have been found, enabling you to work

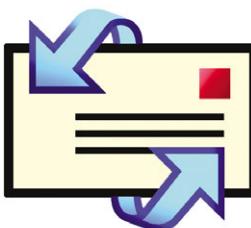
online. If you can't connect after clicking Try Again, check to be sure that you are connected to the Internet. Double-check wired and wireless connections. If you are properly connected but still experience problems, it could be that your ISP (Internet service provider) is having difficulties. Contact your ISP if the problem continues.

Error: Your SMTP server has not responded in 60 seconds. Would you like to wait another 60 seconds for the server to respond?

Translation: This error may appear when you attempt to send an Outlook Express message with a graphics attachment. The cause may be attributed to a U.S. Robotics winmodem installed on your PC. A winmodem is known as a soft-modem because it uses your computer's hardware to perform many functions.

This problem may also prompt another error message to appear:

A time-out occurred while communicating with the server. Subject <subject text>, Account: <account>@<domain>.<net>, Server: <server-name>.<net>, Protocol: SMTP, Port: 25, Secure(SSL): No, Error Number: 0x800CCC19



Solution: If you use a dialup modem to connect to the Internet, you'll need to configure to tweak the modem's settings. To find your modem's settings, click the Start button and then click Control Panel. Double-click Modems and then select your modem. Click Properties. Next, select the Connection tab and then click Advanced. Type S12=50 in the Extra Settings box. Click OK and then click Close. For more information, visit support.microsoft.com and search for Microsoft's Knowledge Base article KB254926.

Error: SMAX4PNP is not responding

Translation: You might see this error message when you attempt to shut down your PC. This error most likely refers to a damaged or corrupted integrated SoundMax audio driver, and you can bypass the problem by clicking End Now, at which point Windows resumes the shut down process. Typically, you'll encounter this error until the problematic driver is repaired.

Solution: To fix this problem, simply reinstall the driver SoundMax audio driver via the Device Manager. In Windows XP, click Start, right-click My Computer, and then click Properties. Click the Hardware tab

and then click Device Manager. To access the Device Manager in Vista, click Start and then right-click Computer. Click Properties and then click Device Manager in the Tasks column when the System window appears.

Once the Device Manager appears, click the plus sign (+) next to Sound Video And Game Controllers. Right-click SoundMAX Integrated Digital Audio, select Uninstall, and then click OK when the Confirm Device Removal window appears. Restart your PC. When the PC reboots, the Hardware Update Wizard will automatically reinstall the driver. If you manually installed the driver and want to install that same driver again, make sure to select the Install From A

List Or Specific Location (Advanced) radio button and then click Browse on the next screen. If the driver is on a disc, insert it and navigate to your optical drive; otherwise navigate to the location in which you saved the driver. In some instances, you will need to visit your PC manufacturer's Web site and download the most up-to-date version of this audio driver.

If the new driver causes more problems, simply roll it back to a previous version. To do this in WinXP/Vista, access the Device Manager, double-click the device with the problematic driver, click the Driver tab, and then click Roll Back Driver. Click Yes to confirm, click Close, and click Yes to restart your computer (if asked).

Error: Unable to log onto MultiPASS Server, please restart MP Service

Translation: After installing the MultiPASS Desktop Manager, you may see this error when you start Windows or attempt to print to your Canon printer. The error message indicates that MultiPASS Status Monitor is not running, and the Canon printer cannot print your document.

Solution: To print to your Canon printer, you'll need to restart the MultiPASS Status Monitor. Click OK at the Unable To Log Onto MultiPASS Server error message. In Window XP, click Start, right-click My Computer, and select Manage. At the Computer Management window, double-click Services And Applications, double-click Services, right-click MPService, and click Start, which will open the Multi-

PASS Status Monitor. Once the MultiPASS Status Monitor is displayed, right-click it and select Reconnect.

If your computer is hard-wired to a network system, Canon also suggests that you disconnect the cable from the network before you turn on the computer. If the error continues to occur at start up or when you print, you should uninstall and reinstall the MultiPASS Desktop Manager.

Have questions about an error message you've seen? Send us your message (errormessages@smartcomputing.com), and we'll try to decipher it. Tell us what version of Windows you're using, give the full text of the error message, and provide as many details in your explanation as possible. Volume prohibits individual replies.

FAST FIXES

Apple QuickTime 7.5 Security Update

Problem: Version 7.5 of QuickTime contains several flaws that could allow an attacker to remotely execute malicious code on a user's system.

Solution: To prevent these flaws from allowing an attacker to compromise your system, download the latest QuickTime update. Go to www.apple.com. For Windows systems, type **sd19502** in the Search field. For Mac systems, use the following download IDs: **sd19503** (for Leopard), **sd19504** (for Tiger), **sd19505** (for Panther). A new page will appear with the search results. Choose the Apple - Support - Downloads - QuickTime 7.5 For Windows link (or the similarly named Mac link if that applies to you). Click the numbered file link with the blue downward arrow next to it and save the file to your hard drive. When the file is downloaded, double-click it to launch the installer. After the installation is complete, restart your computer.

www.apple.com

Update For Windows Vista

Problem: When the Regional And Language Options are changed in Windows Vista, VBScript built-ins such as dates, times, percentages, and currency will not display correctly.

Solution: To resolve this functionality issue, download the following update for Windows Vista. Go to www.microsoft.com/downloads and type **KB951978** in the Search field and press ENTER. From the search results, click the Download Details Update For Windows Vista **KB951978** link. This will take you to the download page for the update. Review the update information and click Continue to validate your copy of Windows. After validation, the Download box will turn blue; click Download and save the file to your hard drive. After the file is downloaded, locate it and

double-click it to start the installer. Follow the installer directions, and when finished, restart your computer.

www.microsoft.com

Windows Media Player 11 For Windows XP

Update: Windows Media Player 11 contains new features such as network sharing, video and photo integration, a new interface, access to online music services, and a simplified music library.

Download: To download the latest version of Windows Media Player, go to www.microsoft.com and type **Windows Media Player 11** in the Search field and press ENTER. From the results list, choose the Windows Media Player 11 link. You will be directed to a new page that offers information about the new version. Click Download Now at the top of the page. Review the download information and click Download Now at the bottom of the page. Save the file to your hard drive, and once the download is complete, locate the file and double-click it to start the installation. When the installation is complete, restart your computer.

www.microsoft.com

Firefox 3 Download

Update: Firefox 3 contains several new features such as increased malware protection, Web forgery protection, antivirus integration, parental controls, easier password management, a new download manager, smart bookmarks, and places organizer.

Download: To download the newest version of Firefox, go to www.mozilla.com and click Download Firefox - Free in the green box on the main page. A new page will appear that offers directions on what to do if the file download box fails to appear. Save the executable file to your hard drive, and

when the download is complete, double-click the file to instigate the installation. Follow any on-screen directions and once the installation is complete, restart your computer.

www.mozilla.com

FIX OF THE MONTH

Update For Windows XP

Problem: When upgrading to Windows XP SP3 (Service Pack 3), some computers with non-Intel processors display one of the following error messages: A problem has been detected and Windows has been shut down to prevent damage to your computer. Technical information: STOP: 0x0000007E (0xC0000-005, 0xFC5CCAF3, 0xFC90F8C0, 0xFC90F5C0) SYSTEM_THREAD_EXCEPTION_NOT_HANDLED or STOP 0x 000000FC (ATTEMPTED_EXECUTE_OF_NOEXECUTE_MEMORY). The error may cause the computer to restart continually.

Solution: To prevent this error from occurring, install an update for Windows XP before installing SP3. Go to www.microsoft.com/downloads and type **KB953356** in the Search field. Be sure you use the download page Search field and not the www.microsoft.com Search field. Click the Update For Windows XP **KB953356** link. On the download page, review the information about the download and the system requirements and then click the Download button. Save the file to your hard drive. When it is finished downloading, locate the file and double-click it to launch the installer. Follow any on-screen directions to complete the installation and then restart your computer.

www.microsoft.com

Q&A

Need help with your hardware or software? Looking for simple explanations on technical subjects? Send us your questions!

Get straight answers to your technical questions from *Smart Computing*. Send your questions, along with a phone and/or fax number, so we can call you if necessary, to: *Smart Computing* Q&A, P.O. Box 85380, Lincoln, NE 68501, or email us at q&a@smartcomputing.com. Please include all version numbers for the software about which you're inquiring, operating system information, and any relevant information about your system. (Volume prohibits individual replies.)



Multimedia

Q I have hundreds—maybe thousands—of slides from my family. I'm not sure how to put them on my computer so that I can share them online.

A Slides are a wonderful photographic medium. The image quality with Kodachrome slides can be far higher than many of today's leading digital cameras. So consider yourself lucky to have been given such a treasure trove of family photos.

There are two methods for "digitizing" your slides: Do it yourself, or hire someone to do it for you. Taking the DIY path means purchasing a scanner that can convert your slides to digital format and then scanning them into your computer.

Slide scanners are dedicated devices that scan your slides at a very high resolution. The higher the resolution, the more detail that will be visible in the digital version. Dedicated slide scanners range in price from approximately \$200 to over \$600. The more expensive scanners are usually faster and create more accurate digital images than their more affordable counterparts. The downside to purchasing a dedicated slide scanner is that you will probably use it just once, for your large batch of slides. Fortunately you should

be able to recoup a portion of the cost by selling your scanner on eBay (www.ebay.com) or via craigslist (www.craigslist.org).

If you don't want to purchase a slide scanner, you may be able to use a flatbed scanner for your slides. Flatbed scanners are designed to scan sheets of paper, or photo prints, but many include a slide carrier that allows you to scan slides. Flatbed scanners are far more versatile than slide scanners, and you should be able to find a reputable one for under \$200. The only downside is that most flatbed scanners won't be able to scan your images as well as a dedicated slide scanner.

Finally, you can outsource your entire project to a company like ScanCafe (www.scancafe.com). ScanCafe will charge you \$.24 per slide to scan your slide collection. Although this might seem expensive, when you look into the details you may find that it's a good deal. ScanCafe uses high-quality slide scanners, so you get the highest possible quality from your slides. You also don't have to pay for slides that don't scan well. In addition, scanning your slides at home can be a tedious process, one that you can avoid by using ScanCafe. Finally, ScanCafe will digitally "clean up" any dirt or blemishes on your slides.



Hardware

Q Is there any way to convert my old albums to MP3? I don't want to pay twice for the same songs.

A Ah, vinyl! In this digital age, it's heartening to know that analog music still exists. Fortunately, you can enjoy the best of both worlds by digitizing your LPs for playback on your computer and iPod while enjoying their analog sound on your stereo system.

The easiest way to digitize your collection is with one of the new turntables that have a USB connection. Two popular turntables are Audio Technica's AT-LP2D-USB (\$229; www.audio-technica.com) and Ion's Ion TTUSB

Turntable (\$149; www.ion-audio.com). Shop around online, and you'll likely find them for under \$100.

Most of the current crop of USB-enabled turntables include a software package that will take the sound and convert it to MP3 format. If they don't include a sound utility, you can download Audacity free from audacity.sourceforge.net. Audacity works on both Windows and Apple's OS X.

Using these turntables is easy. You simply connect them to your computer with a USB cable, start the sound utility, and then play your LP. The sound utility will convert your

music to MP3 format and then you can import it into your digital music player. You may find that your music isn't crystal clear.

Depending on the condition of your records, you may want to clean them with a record cleaner to improve the recording.



Online

Q Can you recommend any sites for sharing my digital photos? My wife and I have a new child and we want to keep our parents (and the rest of the family) up-to-date as our daughter grows up.

A Sharing your photos online has become a rite of passage for many parents. And your options have never been better; the marketplace for online photo sites is plentiful. The four criteria you want to look for are ease of use, price, community, and stability.

The 800-pound gorilla in online photo-sharing is Flickr (www.flickr.com), now run by Yahoo!. Flickr uses the "freemium" business model, where service is broken down into a free version and a fee-based version. The primary distinction between the two is that the free version limits the amount of photos you can upload in a single month.

Google's Picasa service (picasa.google.com) is another popular option. With Picasa Web Albums, you can store up to 1GB of

photos free. Upgrade for extra storage. See tinyurl.com/64rfnn for pricing details.

Both services are comparable in terms of accessibility and ease of use. Both are well-run, by stable companies and incorporate new features at roughly the same rate. You can order prints from both sites, as well as organize your photos by tagging them with metadata.

In our opinion, there's no significant difference between the two sites, so we encourage you to try both of them out. If neither seems to be what you're looking for, you can investigate some lesser-known sites such as Photo Bucket (www.photobucket.com), SmugMug (www.smugmug.com), or Kodak's Gallery (www.kodakgallery.com).

One advantage of posting your photos online is that these Web sites can serve as an archival backup of your photos in case something happens to your computer. We've heard too many tales of users losing all their photos when their hard drive crashes, so any backup is better than losing your photo collection.



Windows

Q My computer keeps crashing with the infamous BSOD (blue screen of death). This error message instructs me to run a system diagnostic utility. It says that the memory might be faulty or mismatched. How do I run the utility to check the memory? I have added more memory. It suggests changing video adapters, as well. This has been done. The system will stay on for a brief time and then shut down with the same error message. I have spent money, lost a lot of time, and still have found no cure.

A Diagnosing Windows crashes can be a challenge if you aren't deliberate in your methods. In our experience, most crashes can be traced back to faulty or defective memory or a poorly functioning software driver. If an application is buggy, it usually won't make Windows crash.

Because of this, our general strategy is twofold. First, think of anything you've

recently changed on your computer. If you've installed new memory or a new video card, try putting the original components back in and seeing if the problems persist. If they do, you might have been given a defective hardware component. If you want to test your memory, you can use Memtest86 (free; www.memtest.org). This will help you evaluate your memory for problems.

If you can pin the crashes on to one piece of hardware, be sure to check the vendor's Web site for updated drivers. Many vendors continually refine and improve their drivers, so it's worth checking before you return the component.

The important thing in diagnosing these crashes is to make one change at a time. If you make a series of concurrent changes, you won't be able to pinpoint the culprit. Take a methodical approach, and you'll eventually be able to restore stability to your system. ■

Frequently Asked Questions

Answers To Users' Most Common Questions About Notebook Security

Unfortunately,
there is no way
to keep your
notebook
absolutely safe
under every
circumstance, but
vigilance and
awareness can
help reduce the
odds of theft.

FAQ How can I prevent my notebook from being stolen?

Unfortunately, there is no way to keep your notebook absolutely safe under every circumstance, but vigilance and awareness can help reduce the odds of theft.

Try to keep your notebook with you at all times or keep it securely out of the way so that it's less of a temptation. If you're driving, keep it locked in the trunk instead of on the front seat. If you're flying, take the notebook onboard as a carry-on. In the office, use tie-downs or keep the unit locked in your desk anytime that you step away for meetings or other distractions.

FAQ How do notebook tie-downs work?

A tie-down is basically a simple security kit. A hardened metal wire attaches to the notebook at one end, locking into a small standardized opening provided on many notebook models. The wire then attaches to a small receptacle mounted inconspicuously on a desk. This tethers the notebook to your desk. A combination lock allows you to disengage the tether from your notebook and take it with you.

FAQ How does data encryption secure the notebook?

Encryption is a powerful security tool that mathematically scrambles data on your notebook's hard drive and then reconstructs that data for normal use when you log in to the system and provide the correct cipher key. It is impractical for anyone to guess your cipher key, so your data is inaccessible in its encrypted state. But, it's important to note that encryption only protects your data; it does absolutely nothing to prevent notebook theft.

Encryption is increasingly important for mobile users that carry sensitive business data. When a notebook with unencrypted data is lost or stolen, the business is often obligated to report the loss publicly and may be liable to financial penalties. If the sensitive data is encrypted and the notebook is stolen, the business

is absolved of some (or all) of those public reporting obligations.

One problem with encryption is that it's rarely applied automatically. You normally need to decrypt the data to make it accessible and then re-encrypt the data before shutting down your system. If you decrypt the data and your notebook is stolen before you have a chance to re-encrypt it, that data may be exposed unless your encryption platform is set up to encrypt during Standby mode or provides other features to re-encrypt automatically.

FAQ Should I insure my notebook under my homeowner's or car insurance policy?

This is a difficult question to answer because there can be great differences among jurisdictions, states, provinces, and countries. In North America, for example, a personal notebook would usually be included on a rider with your regular homeowner's (fire and theft) insurance. Unfortunately, notebooks are so inexpensive and lose their value so quickly that you'll usually be stuck paying for the notebook from the deductible, so why pay any added insurance premium if you're going to wind up footing the bill anyway? Have a conversation with your insurance provider for more specific information and to explore options for low-cost plans specific to electronic equipment.

Insurance coverage for a business notebook can get even trickier. Many companies with mobile employees make the employee directly responsible for their notebook. You may not be able to add the business notebook to your existing homeowner's policy or obtain any insurance at all for the unit because you don't technically own it. It's a topic that you should discuss with your local insurance provider and your employer. Also, discuss the matter with your tax professional, because any insurance premiums paid to cover a work notebook may be tax deductible. ■

Are you having trouble finding a product or getting adequate service from a manufacturer? If so, we want to help solve your problem. Send us a description of the product you're seeking or the problem you're having with customer service. In billing disputes, include relevant information (such as account numbers or screen names for online services) and photocopies of checks. Include your phone number in case we need to contact you.

Letters may be edited for length and clarity; volume prohibits individual replies.



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Stopping On-going Protection & Cancelling A Seven-Day Trial

I had a two-year subscription to Norton Internet Security scheduled to expire July 2, 2008. In early April, I notified Symantec that I would not renew.

On June 2, I received an email advising that Symantec would automatically renew my enrollment and bill my credit card. Symantec said that I had consented to this feature when I subscribed.

I have written two emails to the company without response. Can you help?

Carl D.
Sun City West, Ariz.

Carl contacted us after he received the email stating Symantec (www.symantec.com) would automatically renew his subscription. We then contacted Symantec. Within a few hours, our contact assured us that someone was looking into this situation. The same day, Carl received

two emails from Symantec letting him know it would not renew his subscription.

When placing an order from Symantec's Web site, it automatically enrolls you in Norton On-going Protection to give you protection against newly emerging threats. There's no way to opt out: By placing the order, you are agreeing to Norton On-going Protection. However, after placing an order, you can cancel Norton On-going Protection using instructions from the order confirmation email.

Should you wish to cancel Norton On-going Protection at another time, you can do so at tinyurl.com/3pa26e. Also, about two weeks prior to the auto renewal, Symantec will send you a reminder to let you know about the upcoming renewal. This email also provides instructions that tell you how to opt out of Norton On-going Protection. If you decide to cancel Norton On-going Protection, keep in mind that you will receive an email to confirm your request was

received. If you do not receive a confirmation, it's in your best interest to try again.

In April, I tried a free seven-day trial with the genealogy group OneGreatFamily.com. I canceled after five days. I didn't hear back about the cancellation, so I later checked the account to find it was active.

When I contacted the company again to cancel, it canceled one day after the free trial ended. Now, I am being charged for use of the Web site.

The company refuses to accept my explanation and claims I did not follow the terms of the contract on cancellation. I have no idea what happened to my first cancellation, and I have not used the site since cancelling other than to try to verify the cancellation.

Tom
Utah

We contacted OneGreatFamily.com on Tom's behalf by email and received an email reply the same day letting us know the company was investigating. A few days later, OneGreatFamily.com issued Tom a full credit. OneGreatFamily.com checked its systems and could find no evidence of the cancellation, so it based the refund on Tom's word that he tried to cancel.

Not all companies will base refunds on someone's word. Make sure you understand the rules of a trial when you sign up. Make a note of the date by which you need to cancel a trial to avoid charges. If you are planning to cancel, do so one day early. If you're unsure how to cancel, refer to the terms and conditions of the trial or search online to find cancellation instructions.

Tom mentioned OneGreatFamily.com did not reply to his cancellation request, so he checked to verify the trial had been cancelled. Most companies will send an automatically generated email within minutes of a customer submitting information through a Web form. If you haven't received an email from the company in about 30 minutes, try again. ■

Keep It Clean

If you read last month's column, you know we just moved. If you've moved much, you know that such events are great opportunities to engage in deep cleaning. When else do you clear away the stuff hiding years-old dust bunnies and lost left socks? Your PC accumulates grime and loose ends in much the same way: gradually, over time, and with all kinds of hidden surprises. I'm not speaking metaphorically. We're talking about actual debris: dander particles, dead skin cells, and mite remains. You know—common household dust. Over time, this dirt can lead to all sorts of computer problems. Don't wait for your next move (or your next computer). Catch up on some of the chores I neglected before you have a real mess on your hands.

As a way of getting around the limitations of a rehab with granite countertops and no working phone jacks, I finally set up my personal desktop for wireless networking. Despite my decidedly nerdy background tinkering with drives and settings, I hadn't been inside this particular computer for at least a year. What can I say? I'm slipping. The first thing I noticed when removing the side panel was a thick layer of dust coating everything inside. I always keep a few cans of compressed air on hand, and you should have some, too, if you don't already. In several shifts (those things get *cold*), I blew away all the accumulated allergens. When it's your turn, pay extra attention to the various fans and to each major component. Excessive dust in the case can restrict airflow, causing your computer to run hot. Excessive buildup can even cause fans or other crucial moving parts to seize up. Either effect can range from annoying to devastating, depending on what it impacts and when it hits, but problems of this nature are almost always difficult and time-consuming to diagnose. Spare yourself the hassle. Every time you have cause to open the case, and occasionally in between, clear the insides and the area around your machine of dust and debris.

Your machine's guts aren't the only parts prone to grubby buildup. Oil and dust collects on printer paper, as well, from handling and sitting in trays. The printer's heads and rollers come in close contact with that paper, moving the sheets

along and placing the ink (or toner) in just the right spot. Where do you think some of that gunge ends up? It's not all your fault—ink particles and paper dust build up over time, as well, clogging print heads and making it hard for the rollers to pass paper cleanly through the feeding mechanisms. Your first and best option is to use the head cleaner utility built into most printers. To find it, click Start, Control Panel, Printers And Other Hardware, and Printers And Faxes in WinXP or Start, Control Panel, and Printer in Vista. Next,

right-click the printer's entry and click Printing Preferences. This often offers maintenance or service options that clear out and diagnose cartridge or print head issues. You may also be able to remove the cartridge and clean the print head with a cotton swab dipped in rubbing alcohol. Check your printer's documentation for specific guidelines on maintenance and cleaning. You'll use less ink, print better-quality pages, and have fewer printer problems by keeping things clean.

Finally, I have to admit that I'm a notorious slob when it comes to keeping screens clean. I'd like to pretend that my monitor's LCD panels were dirty and finger-printed simply from being packed into and carried around in a moving box. The truth is that they were filthy before. My laptop has similar problems—I'm terrible about touching the screen to

follow a spreadsheet row or point out a problem pixel. Plus, I'm on the road a lot and try to keep working whenever I catch a moment, so I'm rough on opening and closing the screen with all kinds of awkward grips. An unclean display may not cause technical failure, but a dirty screen can lead to eyestrain and poor-quality work. Both can certainly get in the way of enjoyable computing, so keep some screen wipes (or a clean microfiber cloth) on hand to give your display a quick cleansing every week or so. ■

BY GREGORY ANDERSON

Gregory Anderson is a regular contributor to Smart Computing and several other technology publications. He keeps a sharp eye (with the help of thick glasses) on computing trends and enjoys working with geeks of all stripes—most of the time. Come clean at gregory.anderson@smartcomputing.com.



Each month, the *Smart Computing* staff gets to work with all kinds of new computing and consumer electronics products. Here are some of the favorite items that recently crossed our desks.



Audiowrapz

\$24.99 | iFrogz | www.ifrogz.com

There are a lot of ruggedized case options for third-generation iPod nanos, but the Audiowrapz from iFrogz includes an uncommon feature: built-in speakers to let you share music and video audio. Additionally, the speakers use passive technology that doesn't require batteries or draw power from your iPod.

The sound quality from the tiny speakers isn't the greatest, but the main vocals and instrumentals sound crisp. More importantly, the Audiowrapz's ease of use beats plugging in separate speakers or sharing earphones (and earwax) with others. The thick rubber case protects your iPod nano from drops and bumps, and for further protection, iFrogz includes a plastic screen protector. When you want to listen on your headphones, you can connect the headphones plug into the earphone jack at the bottom of the case.

iFrogz offers the Audiowrapz in eight colors. The case is compatible with all third-generation iPod nanos.

by Nathan Lake

Disc Studio 100

\$29.95 | Discgear | www.discgear.com

Despite my hard drive-full of music, I still have tons of CDs. I can't bring myself to pitch my CD collection (after all, my hard drive could fail at any time), but I don't want to store them in their original plastic cases. Those hard cases offer some protection, but they eat up space at home, too.

If you find yourself in the same predicament, I recom-

mend checking out the hip, stackable, space-saving Studio 100. The device has 50 slender pods (each of which holds two CDs) that feature staggered tabs and pod numbers. Simply find your CD's title and pod number on the title sheet and then flip the tab of the matching pod to get your CD. Once you create a free Discware ID, you can create and print the titlesheet that matches your CDs to their pod numbers. The Studio 100 also includes a Disc Satellite, which is a portable case that stores up to 12 pods.

by Joshua Gulick



GO 930

\$499.95 | TomTom | www.tomtom.com

The saying "you get what you pay for" holds true to some degree for electronics. Often, higher-priced models have more features. Case in point: TomTom's GO 930 is the most expensive GPS navigation device in the company's Car Navigation line, but it also is the device with the most features. During a recent road test, I enjoyed all of the extras the GO 930

had to offer, including IQ Routes technology, Advanced Lane Guidance, voice input, customized voices, and much more. I also like that this device is portable, fitting in my purse or briefcase during a trip. Although \$500 is a lot of money, the GO 930 gives you what you pay for.

by Jennifer Johnson



GoStereo Foldable

\$8.99 | Price Point Accessories
www.ipodminimall.com

Portable speakers are getting plenty of attention these days, thanks to iPod users who want to share their tunes with friends. If you're looking for speakers that won't take up much space in your backpack or carry-on, the GoStereo Foldable is your kind of speaker system. The unit, which runs on four AAA batteries, offers plenty of volume for users who want to listen to tunes at a desk, in the kitchen, or at the beach. Price Point Accessories offers the GoStereo Foldable via reseller iPodMiniMall.com.

by Joshua Gulick





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